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APPENDICES

APPENDIX A

Extraction and isolation from *Centella asiatica*

Fresh leaves 5.99 kg

↓

Maceration with ethanol,
ambient temperature, 3 days

Successively
extracted until
exhausted

↓

Filtration through filter paper

Marc   Concentration under reduced pressure

| Add water, chloroform

Water phase   Chloroform phase

| n-Butanol

Butanol phase   Water phase   Determination by TLC method

| Evaporation to dryness

Dissolve in methanol

| Pass through Sephadex-LH 20

Collection of 20 ml of fraction

↓

Primarily identified by TLC metehod

(Asiaticoside, Madecassoside, Madecassic acid and Asiatic acid)

Figure A 1   Schematic of extraction and isolation of Active Constituents from
Centella asiatica from method A1

Dried leaves 2 kg

↓

Reflux with methanol:water = 7:3,

Successively   80° C, 3 hours
extracted until
exhausted

↓

Filtration through filter paper

Marc   Concentration under reduced pressure

|+ Dichloromethane

Water phase   Dichloromethane phase

| n-Butanol

Wash with 0.2 N sodium carbonate   Determination by TLC method

↓

Clear water layer

| Wash with water to pH 7

Butanol phase   Water phase

|+ Ethyl acetate

Yellow precipitates

(Asiaticoside and Madecassoside)

Figure A 2   Schematic of extraction and isolation of Active Constituents from

Centella asiatica from method A2

APPENDIX B

Data of pseudoternary phase diagram

Table B1   Pseudotemary phase system of caprylic/capric triglyceride: Brij30:

water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	1	emulsion
4	0	30	70	1	emulsion
5	0	40	60	1	emulsion
6	0	50	50	1	emulsion
7	0	60	40	2	unstable isotropic
8	0	70	30	2	unstable isotropic
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	3	unstable emulsion
14	10	20	70	4	unstable isotropic
15	10	30	60	4	unstable isotropic
16	10	40	50	4	unstable isotropic
17	10	50	40	2	unstable isotropic
18	10	60	30	2	unstable isotropic
19	10	70	20	2	unstable isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	3	unstable emulsion
24	20	20	60	3	unstable emulsion
25	20	30	50	3	unstable emulsion
26	20	40	40	4	unstable isotropic
27	20	50	30	2	unstable isotropic
28	20	60	20	2	unstable isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	2	unstable isotropic
35	30	40	30	2	unstable isotropic
36	30	50	20	2	unstable isotropic
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	2	unstable emulsion
42	40	30	30	2	unstable isotropic
43	40	40	20	2	unstable isotropic
44	40	50	10	1	isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	3	unstable emulsion
49	50	30	20	2	unstable isotropic
50	50	40	10	2	unstable isotropic
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	2	unstable emulsion
55	60	30	10	3	unstable isotropic
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	3	unstable emulsion
59	70	20	10	2	unstable emulsion
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	1	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

Table B2   Pseudoternary phase system of caprylic/capric triglyceride: Brij97:

Water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	2	unstable isotropic
3	0	20	80	2	unstable isotropic
4	0	30	70	2	unstable isotropic
5	0	40	60	2	unstable isotropic
6	0	50	50	2	unstable isotropic
7	0	60	40	1	liquid crystal
8	0	70	30	1	liquid crystal
9	0	80	20	1	liquid crystal
10	0	90	10	1	liquid crystal
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	1	unstable emulsion
17	10	50	40	2	unstable emulsion
18	10	60	30	2	unstable emulsion
19	10	70	20	1	unstable emulsion
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	2	unstable emulsion
26	20	40	40	2	unstable emulsion
27	20	50	30	2	unstable emulsion
28	20	60	20	2	unstable emulsion
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	1	unstable emulsion
35	30	40	30	2	unstable emulsion
36	30	50	20	2	unstable isotropic
37	30	60	10	1	isotropic
38	30	70	0	2	unstable isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	2	unstable emulsion
42	40	30	30	2	unstable emulsion
43	40	40	20	2	unstable emulsion
44	40	50	10	1	isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	1	emulsion
49	50	30	20	2	unstable emulsion
50	50	40	10	2	unstable isotropic
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	3	unstable emulsion
54	60	20	20	2	unstable emulsion
55	60	30	10	2	unstable emulsion
56	60	40	0	3	unstable liquid crystal
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	2	unstable emulsion
60	70	30	0	4	unstable liquid crystal
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	1	liquid crystal
64	90	0	10	2	unstable isotropic
65	90	10	0	2	unstable isotropic
66	100	0	0	1	isotropic

Table B3   Pseudoternary phase system of caprylic/capric triglyceride: ArlatoneT:

Water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	1	unstable emulsion
4	0	30	70	1	isotropic
5	0	40	60	1	isotropic
6	0	50	50	1	unstable liquid crystal
7	0	60	40	2	unstable liquid crystal
8	0	70	30	2	liquid crystal
9	0	80	20	1	unstable liquid crystal
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	3	unstable liquid crystal
16	10	40	50	3	unstable liquid crystal
17	10	50	40	2	unstable liquid crystal
18	10	60	30	2	unstable liquid crystal
19	10	70	20	2	unstable liquid crystal
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	3	unstable emulsion
24	20	20	60	3	unstable emulsion
25	20	30	50	3	unstable emulsion
26	20	40	40	3	unstable liquid crystal
27	20	50	30	2	unstable liquid crystal
28	20	60	20	2	unstable liquid crystal
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	5	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	3	unstable emulsion
34	30	30	40	3	unstable liquid crystal
35	30	40	30	3	unstable liquid crystal
36	30	50	20	2	unstable liquid crystal
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	4	unstable emulsion
41	40	20	40	3	unstable emulsion
42	40	30	30	3	unstable liquid crystal
43	40	40	20	2	unstable liquid crystal
44	40	50	10	1	isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	3	unstable emulsion
48	50	20	30	2	unstable emulsion
49	50	30	20	2	unstable liquid crystal
50	50	40	10	2	unstable liquid crystal
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	4	unstable emulsion
54	60	20	20	2	unstable emulsion
55	60	30	10	2	unstable liquid crystal
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	4	unstable emulsion
59	70	20	10	2	unstable emulsion
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	3	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

Table B4   Pseudoternary phase system of caprylic/capric triglyceride:

Tween80/Span80 (1:1): water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	2	unstable emulsion
4	0	30	70	1	emulsion
5	0	40	60	1	emulsion
6	0	50	50	2	unstable emulsion
7	0	60	40	2	unstable emulsion
8	0	70	30	2	unstable emulsion
9	0	80	20	1	liquid crystal
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	1	emulsion
17	10	50	40	2	unstable emulsion
18	10	60	30	2	unstable emulsion
19	10	70	20	2	unstable liquid crystal
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	1	emulsion
24	20	20	60	1	emulsion
25	20	30	50	1	emulsion
26	20	40	40	1	emulsion
27	20	50	30	2	unstable emulsion
28	20	60	20	2	unstable liquid crystal
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	1	emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	1	emulsion
34	30	30	40	1	emulsion
35	30	40	30	2	unstable emulsion
36	30	50	20	3	unstable liquid crystal
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	1	emulsion
41	40	20	40	2	unstable emulsion
42	40	30	30	3	unstable emulsion
43	40	40	20	2	unstable emulsion
44	40	50	10	2	unstable liquid crystal
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	1	emulsion
49	50	30	20	2	unstable emulsion
50	50	40	10	2	unstable liquid crystal
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	1	emulsion
54	60	20	20	2	unstable emulsion
55	60	30	10	2	unstable emulsion
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	2	unstable emulsion
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

126

Table B5   Pseudoternary phase system of caprylic/capric triglyceride:

Tween80/Span80 (2:1): water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	2	unstable emulsion
4	0	30	70	2	unstable emulsion
5	0	40	60	1	emulsion
6	0	50	50	1	emulsion
7	0	60	40	2	unstable emulsion
8	0	70	30	2	unstable emulsion
9	0	80	20	1	unstable emulsion
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	1	emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	1	emulsion
16	10	40	50	1	emulsion
17	10	50	40	2	unstable emulsion
18	10	60	30	2	unstable emulsion
19	10	70	20	2	unstable emulsion
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	1	emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	1	emulsion
26	20	40	40	2	unstable emulsion
27	20	50	30	2	unstable emulsion
28	20	60	20	1	liquid crystal
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	1	emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	1	emulsion
34	30	30	40	1	emulsion
35	30	40	30	2	unstable emulsion
36	30	50	20	2	unstable emulsion
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	3	unstable emulsion
42	40	30	30	2	unstable emulsion
43	40	40	20	2	unstable emulsion
44	40	50	10	2	unstable liquid crystal
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	1	emulsion
48	50	20	30	2	unstable emulsion
49	50	30	20	3	unstable emulsion
50	50	40	10	2	unstable liquid crystal
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	2	unstable emulsion
55	60	30	10	2	unstable liquid crystal
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	2	unstable emulsion
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

Table B6   Pseudoternary phase system of IPM: Brij30: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	1	emulsion
4	0	30	70	1	emulsion
5	0	40	60	1	emulsion
6	0	50	50	1	emulsion
7	0	60	40	2	unstable isotropic
8	0	70	30	2	unstable isotropic
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	3	unstable liquid crystal
14	10	20	70	3	unstable liquid crystal
15	10	30	60	3	unstable liquid crystal
16	10	40	50	3	unstable liquid crystal
17	10	50	40	2	unstable liquid crystal
18	10	60	30	2	unstable liquid crystal
19	10	70	20	2	unstable liquid crystal
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	3	unstable emulsion
24	20	20	60	3	unstable emulsion
25	20	30	50	3	unstable liquid crystal
26	20	40	40	3	unstable liquid crystal
27	20	50	30	2	unstable liquid crystal
28	20	60	20	1	isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	5	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	3	unstable emulsion
34	30	30	40	3	unstable emulsion
35	30	40	30	3	unstable liquid crystal
36	30	50	20	1	isotropic
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	4	unstable emulsion
41	40	20	40	3	unstable emulsion
42	40	30	30	3	unstable emulsion
43	40	40	20	2	unstable liquid crystal
44	40	50	10	1	isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	3	unstable emulsion
48	50	20	30	2	unstable emulsion
49	50	30	20	2	unstable emulsion
50	50	40	10	1	isotropic
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	4	unstable emulsion
54	60	20	20	2	unstable emulsion
55	60	30	10	1	isotropic
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	4	unstable emulsion
59	70	20	10	2	unstable emulsion
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	3	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

Table B7　Pseudoternary phase system of IPM: Brij97: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	isotropic
3	0	20	80	1	isotropic
4	0	30	70	1	isotropic
5	0	40	60	1	isotropic
6	0	50	50	1	isotropic
7	0	60	40	1	isotropic
8	0	70	30	1	isotropic
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	2	unstable emulsion
17	10	50	40	2	unstable emulsion
18	10	60	30	2	unstable emulsion
19	10	70	20	1	unstable emulsion
20	10	80	10	2	unstable emulsion
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	3	unstable emulsion
25	20	30	50	2	unstable emulsion
26	20	40	40	2	unstable emulsion
27	20	50	30	2	unstable emulsion
28	20	60	20	2	unstable isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	2	unstable emulsion
35	30	40	30	2	unstable emulsion
36	30	50	20	2	unstable emulsion
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	2	unstable emulsion
42	40	30	30	2	unstable emulsion
43	40	40	20	2	unstable emulsion
44	40	50	10	1	isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	3	unstable emulsion
48	50	20	30	1	unstable emulsion
49	50	30	20	2	unstable emulsion
50	50	40	10	2	unstable liquid crystal
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	3	unstable emulsion
54	60	20	20	1	unstable emulsion
55	60	30	10	1	liquid crystal
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	3	unstable liquid crystal
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

Table B8   Pseudoternary phase system of IPM: Arlatone T: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	2	unstable isotropic
4	0	30	70	1	isotropic
5	0	40	60	1	isotropic
6	0	50	50	2	unstable liquid crystal
7	0	60	40	2	unstable liquid crystal
8	0	70	30	1	liquid crystal
9	0	80	20	2	unstable liquid crystal
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	2	unstable isotropic
17	10	50	40	3	unstable liquid crystal
18	10	60	30	2	unstable liquid crystal
19	10	70	20	2	unstable liquid crystal
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	2	unstable emulsion
26	20	40	40	2	unstable emulsion
27	20	50	30	1	isotropic
28	20	60	20	1	isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	2	unstable emulsion
35	30	40	30	2	unstable emulsion
36	30	50	20	1	isotropic
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	3	unstable emulsion
41	40	20	40	2	unstable emulsion
42	40	30	30	2	unstable emulsion
43	40	40	20	1	isotropic
44	40	50	10	1	isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	2	unstable emulsion
49	50	30	20	2	unstable liquid crystal
50	50	40	10	1	isotropic
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	2	unstable emulsion
55	60	30	10	1	isotropic
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	1	isotropic
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

Table B9   Pseudoternary phase system of IPM: Tween80/Span80 (1:1): water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	2	unstable emulsion
4	0	30	70	1	emulsion
5	0	40	60	2	unstable emulsion
6	0	50	50	2	unstable emulsion
7	0	60	40	2	unstable emulsion
8	0	70	30	2	unstable emulsion
9	0	80	20	1	liquid crystal
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	1	emulsion
16	10	40	50	1	emulsion
17	10	50	40	2	unstable emulsion
18	10	60	30	2	unstable emulsion
19	10	70	20	2	unstable emulsion
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	1	emulsion
24	20	20	60	1	emulsion
25	20	30	50	1	emulsion
26	20	40	40	1	emulsion
27	20	50	30	2	unstable emulsion
28	20	60	20	2	unstable emulsion
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	1	emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	2	unstable emulsion
35	30	40	30	2	unstable emulsion
36	30	50	20	2	unstable emulsion
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	1	emulsion
41	40	20	40	3	unstable emulsion
42	40	30	30	3	unstable emulsion
43	40	40	20	2	unstable emulsion
44	40	50	10	1	isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	3	unstable emulsion
49	50	30	20	2	unstable emulsion
50	50	40	10	2	unstable liquid crystal
51	50	50	0	1	isotropic
52	60	0	40	2	unstable emulsion
53	60	10	30	3	unstable emulsion
54	60	20	20	2	unstable emulsion
55	60	30	10	2	unstable liquid crystal
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	3	unstable emulsion
59	70	20	10	3	unstable liquid crystal
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable isotropic
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

136

Table B10   Pseudoternary phase system of IPM:tween80/span(2:1):water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	1	emulsion
4	0	30	70	2	unstable emulsion
5	0	40	60	1	emulsion
6	0	50	50	1	emulsion
7	0	60	40	2	unstable isotropic
8	0	70	30	2	unstable isotropic
9	0	80	20	2	unstable isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	1	emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	3	unstable emulsion
16	10	40	50	1	emulsion
17	10	50	40	2	unstable emulsion
18	10	60	30	2	unstable emulsion
19	10	70	20	2	unstable emulsion
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	1	emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	2	unstable emulsion
26	20	40	40	1	emulsion
27	20	50	30	2	unstable emulsion
28	20	60	20	2	unstable isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	2	unstable emulsion
35	30	40	30	3	unstable emulsion
36	30	50	20	3	unstable emulsion
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	1	emulsion
41	40	20	40	2	unstable emulsion
42	40	30	30	2	unstable emulsion
43	40	40	20	2	unstable isotropic
44	40	50	10	1	isotropic
45	40	60	0	2	unstable isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	3	unstable emulsion
49	50	30	20	3	unstable emulsion
50	50	40	10	2	unstable liquid crystal
51	50	50	0	2	unstable isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	3	unstable emulsion
55	60	30	10	2	unstable isotropic
56	60	40	0	2	unstable isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	3	unstable isotropic
60	70	30	0	2	unstable liquid crystal
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	2	unstable isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	2	unstable isotropic
66	100	0	0	1	isotropic

Table B11   Pseudoternary phase system of caprylic/capric triglyceride: Brij30:

propan-2-ol = 1:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	2	unstable isotropic
3	0	20	80	2	unstable isotropic
4	0	30	70	2	unstable isotropic
5	0	40	60	1	isotropic
6	0	50	50	1	isotropic
7	0	60	40	1	isotropic
8	0	70	30	1	isotropic
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable isotropic
14	10	20	70	3	unstable liquid crystal
15	10	30	60	3	unstable liquid crystal
16	10	40	50	3	unstable liquid crystal
17	10	50	40	1	isotropic
18	10	60	30	1	isotropic
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	3	unstable emulsion
24	20	20	60	2	unstable isotropic
25	20	30	50	3	unstable liquid crystal
26	20	40	40	3	unstable liquid crystal
27	20	50	30	3	unstable liquid crystal
28	20	60	20	1	isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	3	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable isotropic
34	30	30	40	2	unstable isotropic
35	30	40	30	2	unstable isotropic
36	30	50	20	2	unstable isotropic
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	3	unstable emulsion
41	40	20	40	3	unstable liquid crystal
42	40	30	30	2	unstable isotropic
43	40	40	20	2	unstable isotropic
44	40	50	10	1	isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	2	unstable liquid crystal
49	50	30	20	2	unstable isotropic
50	50	40	10	2	unstable isotropic
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	3	unstable emulsion
54	60	20	20	2	unstable liquid crystal
55	60	30	10	2	unstable liquid crystal
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	3	unstable emulsion
59	70	20	10	2	unstable liquid crystal
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	4	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

Table B12   Pseudoternary phase system of caprylic/capric triglyceride:

Brij30: propan-2-ol = 2:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	1	emulsion
4	0	30	70	2	unstable isotropic
5	0	40	60	1	isotropic
6	0	50	50	1	isotropic
7	0	60	40	1	isotropic
8	0	70	30	1	isotropic
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	3	unstable emulsion
14	10	20	70	3	unstable emulsion
15	10	30	60	2	unstable liquid crystal
16	10	40	50	1	isotropic
17	10	50	40	1	isotropic
18	10	60	30	1	isotropic
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	3	unstable emulsion
24	20	20	60	2	unstable liquid crystal
25	20	30	50	2	unstable isotropic
26	20	40	40	2	unstable isotropic
27	20	50	30	1	isotropic
28	20	60	20	1	isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	3	unstable emulsion

ต้นฉบับ หน้าขาดหาย

Table B13   Pseudoternary phase system of caprylic/capric triglyceride:

Brij30: propan-2-ol = 4:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	2	unstable emulsion
4	0	30	70	1	emulsion
5	0	40	60	2	unstable liquid crystal
6	0	50	50	2	unstable liquid crystal
7	0	60	40	1	isotropic
8	0	70	30	1	isotropic
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	1	emulsion
17	10	50	40	1	isotropic
18	10	60	30	1	isotropic
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	3	unstable emulsion
26	20	40	40	2	unstable isotropic
27	20	50	30	1	isotropic
28	20	60	20	1	isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	3	unstable emulsion
34	30	30	40	2	unstable liquid crystal
35	30	40	30	2	unstable liquid crystal
36	30	50	20	1	isotropic
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	3	unstable emulsion
41	40	20	40	2	unstable liquid crystal
42	40	30	30	2	unstable isotropic
43	40	40	20	2	unstable isotropic
44	40	50	10	1	isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	3	unstable emulsion
48	50	20	30	2	unstable liquid crystal
49	50	30	20	2	unstable liquid crystal
50	50	40	10	1	isotropic
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	2	unstable liquid crystal
55	60	30	10	2	unstable liquid crystal
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	3	unstable emulsion
59	70	20	10	2	unstable liquid crystal
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

144

Table B14   Pseudoternary phase system of caprylic/capric triglyceride : Brij97:

propan-2-ol = 1:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	isotropic
3	0	20	80	1	isotropic
4	0	30	70	1	isotropic
5	0	40	60	1	isotropic
6	0	50	50	1	isotropic
7	0	60	40	1	isotropic
8	0	70	30	1	isotropic
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable liquid crystal
16	10	40	50	2	unstable isotropic
17	10	50	40	2	unstable isotropic
18	10	60	30	1	isotropic
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	3	unstable emulsion
25	20	30	50	2	unstable liquid crystal
26	20	40	40	2	unstable isotropic
27	20	50	30	2	unstable isotropic
28	20	60	20	1	isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	3	unstable emulsion
34	30	30	40	2	unstable liquid crystal
35	30	40	30	2	unstable liquid crystal
36	30	50	20	2	unstable liquid crystal
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	3	unstable emulsion
41	40	20	40	3	unstable emulsion
42	40	30	30	2	unstable liquid crystal
43	40	40	20	2	unstable isotropic
44	40	50	10	1	isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	3	unstable emulsion
48	50	20	30	3	unstable emulsion
49	50	30	20	2	unstable liquid crystal
50	50	40	10	2	unstable liquid crystal
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	3	unstable emulsion
54	60	20	20	2	unstable liquid crystal
55	60	30	10	2	unstable liquid crystal
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	3	unstable emulsion
59	70	20	10	2	unstable liquid crystal
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	3	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

Table B15   Pseudoternary phase system of caprylic/capric triglyceride :

Brij97: propan-2-ol = 2:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	isotropic
3	0	20	80	1	isotropic
4	0	30	70	1	isotropic
5	0	40	60	1	isotropic
6	0	50	50	1	isotropic
7	0	60	40	1	isotropic
8	0	70	30	1	isotropic
9	0	80	20	1	unstable liquid crystal
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	2	unstable liquid crystal
17	10	50	40	1	liquid crystal
18	10	60	30	1	isotropic
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	2	unstable liquid crystal
26	20	40	40	3	unstable liquid crystal
27	20	50	30	2	unstable liquid crystal
28	20	60	20	1	isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	3	unstable emulsion
34	30	30	40	3	unstable emulsion
35	30	40	30	2	unstable liquid crystal
36	30	50	20	2	unstable liquid crystal
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	3	unstable emulsion
41	40	20	40	3	unstable emulsion
42	40	30	30	2	unstable liquid crystal
43	40	40	20	2	unstable isotropic
44	40	50	10	1	isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	3	unstable emulsion
48	50	20	30	3	unstable emulsion
49	50	30	20	2	unstable liquid crystal
50	50	40	10	2	unstable liquid crystal
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	3	unstable emulsion
54	60	20	20	3	unstable emulsion
55	60	30	10	2	unstable liquid crystal
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	3	unstable emulsion
59	70	20	10	2	unstable liquid crystal
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

Table B16 Pseudoternary phase system of caprylic/capric triglyceride:

Brij97: propan-2-ol = 4:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	isotropic
3	0	20	80	1	isotropic
4	0	30	70	1	isotropic
5	0	40	60	1	isotropic
6	0	50	50	1	isotropic
7	0	60	40	1	isotropic
8	0	70	30	1	isotropic
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	2	unstable emulsion
17	10	50	40	2	unstable isotropic
18	10	60	30	1	isotropic
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	4	unstable emulsion
26	20	40	40	4	unstable emulsion
27	20	50	30	2	unstable isotropic
28	20	60	20	1	isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	4	unstable emulsion
35	30	40	30	3	unstable liquid crystal
36	30	50	20	1	isotropic
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	2	unstable emulsion
42	40	30	30	2	unstable liquid crystal
43	40	40	20	2	unstable liquid crystal
44	40	50	10	1	isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	3	unstable emulsion
48	50	20	30	2	unstable emulsion
49	50	30	20	3	unstable liquid crystal
50	50	40	10	2	unstable isotropic
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	2	unstable emulsion
55	60	30	10	2	unstable liquid crystal
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	2	unstable liquid crystal
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

Table B17   Pseudoternary phase system of caprylic/capric triglyceride: Arlatone

T: propan-2-ol = 1:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	1	emulsion
4	0	30	70	3	unstable emulsion
5	0	40	60	2	unstable liquid crystal
6	0	50	50	2	unstable liquid crystal
7	0	60	40	2	unstable isotropic
8	0	70	30	2	unstable isotropic
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	1	emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable liquid crystal
16	10	40	50	2	unstable liquid crystal
17	10	50	40	2	unstable liquid crystal
18	10	60	30	2	unstable liquid crystal
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	1	emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	2	unstable isotropic
26	20	40	40	2	unstable isotropic
27	20	50	30	2	unstable isotropic
28	20	60	20	2	unstable isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	3	unstable liquid crystal
34	30	30	40	2	unstable isotropic
35	30	40	30	2	unstable isotropic
36	30	50	20	2	unstable isotropic
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	3	unstable emulsion
41	40	20	40	3	unstable emulsion
42	40	30	30	2	unstable isotropic
43	40	40	20	2	unstable isotropic
44	40	50	10	1	isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	3	unstable emulsion
48	50	20	30	2	unstable isotropic
49	50	30	20	2	unstable isotropic
50	50	40	10	2	unstable isotropic
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	3	unstable emulsion
54	60	20	20	2	unstable isotropic
55	60	30	10	2	unstable isotropic
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	2	unstable isotropic
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

Table B18   Pseudoternary phase system of caprylic/capric triglyceride: Arlatone

T: propan-2-ol = 2:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	2	unstable emulsion
4	0	30	70	1	emulsion
5	0	40	60	2	unstable emulsion
6	0	50	50	3	unstable emulsion
7	0	60	40	2	unstable isotropic
8	0	70	30	2	unstable isotropic
9	0	80	20	2	unstable isotropic
10	0	90	10	2	unstable isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	1	emulsion
15	10	30	60	3	unstable emulsion
16	10	40	50	2	unstable emulsion
17	10	50	40	4	unstable emulsion
18	10	60	30	3	unstable isotropic
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	1	emulsion
24	20	20	60	1	unstable emulsion
25	20	30	50	4	unstable emulsion
26	20	40	40	3	unstable isotropic
27	20	50	30	3	unstable isotropic
28	20	60	20	1	unstable isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	1	emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	2	unstable emulsion
35	30	40	30	4	unstable emulsion
36	30	50	20	1	emulsion
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	3	unstable emulsion
42	40	30	30	2	unstable isotropic
43	40	40	20	2	unstable isotropic
44	40	50	10	1	isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	3	unstable emulsion
49	50	30	20	2	unstable isotropic
50	50	40	10	1	isotropic
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	2	unstable liquid crystal
55	60	30	10	2	unstable isotropic
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	3	unstable emulsion
59	70	20	10	2	unstable liquid crystal
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	3	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

Table B19   Pseudoternary phase system of caprylic/capric triglyceride: Arlatone

T: propan-2-ol = 4:1:water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	2	unstable liquid crystal
4	0	30	70	1	emulsion
5	0	40	60	1	emulsion
6	0	50	50	1	emulsion
7	0	60	40	2	unstable emulsion
8	0	70	30	1	isotropic
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable liquid crystal
14	10	20	70	1	emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	2	unstable emulsion
17	10	50	40	2	unstable isotropic
18	10	60	30	1	emulsion
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	1	emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	1	emulsion
26	20	40	40	2	unstable emulsion
27	20	50	30	1	emulsion
28	20	60	20	1	isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	1	emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	3	unstable emulsion
34	30	30	40	2	unstable emulsion
35	30	40	30	1	emulsion
36	30	50	20	2	unstable isotropic
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	3	unstable emulsion
42	40	30	30	3	unstable emulsion
43	40	40	20	1	emulsion
44	40	50	10	1	isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	3	unstable emulsion
49	50	30	20	2	unstable isotropic
50	50	40	10	1	isotropic
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	3	unstable emulsion
55	60	30	10	2	unstable isotropic
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	2	unstable isotropic
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

Table B20 Pseudoternary phase system of caprylic/capric triglyceride:

Tween80/Span80(1:1): propan-2-ol = 1:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	1	emulsion
4	0	30	70	2	unstable emulsion
5	0	40	60	2	unstable isotropic
6	0	50	50	2	unstable isotropic
7	0	60	40	2	unstable isotropic
8	0	70	30	2	unstable isotropic
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	3	unstable emulsion
15	10	30	60	2	unstable isotropic
16	10	40	50	2	unstable isotropic
17	10	50	40	2	unstable isotropic
18	10	60	30	2	unstable isotropic
19	10	70	20	2	unstable isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	3	unstable emulsion
25	20	30	50	2	unstable emulsion
26	20	40	40	2	unstable isotropic
27	20	50	30	2	unstable isotropic
28	20	60	20	2	unstable isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	3	unstable emulsion
34	30	30	40	2	unstable emulsion
35	30	40	30	2	unstable isotropic
36	30	50	20	2	unstable isotropic
37	30	60	10	3	unstable isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	3	unstable emulsion
41	40	20	40	3	unstable emulsion
42	40	30	30	2	unstable emulsion
43	40	40	20	2	unstable isotropic
44	40	50	10	2	unstable isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	3	unstable emulsion
49	50	30	20	2	unstable isotropic
50	50	40	10	2	unstable isotropic
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	1	emulsion
54	60	20	20	2	unstable emulsion
55	60	30	10	2	unstable isotropic
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	2	unstable emulsion
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	3	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

Table B21   Pseudoternary phase system of caprylic/capric triglyceride :

Twen80/Span80 (1:1): propan-2-ol=2:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	1	emulsion
4	0	30	70	2	unstable emulsion
5	0	40	60	2	emulsion
6	0	50	50	1	isotropic
7	0	60	40	1	isotropic
8	0	70	30	1	isotropic
9	0	80	20	1	liquid crystal
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	2	unstable emulsion
17	10	50	40	2	unstable isotropic
18	10	60	30	2	unstable isotropic
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	2	unstable emulsion
26	20	40	40	2	unstable liquid crystal
27	20	50	30	2	unstable liquid crystal
28	20	60	20	2	unstable isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	2	unstable emulsion
35	30	40	30	2	unstable emulsion
36	30	50	20	2	unstable isotropic
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	2	unstable emulsion
42	40	30	30	2	unstable emulsion
43	40	40	20	2	unstable emulsion
44	40	50	10	3	unstable isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	2	unstable emulsion
49	50	30	20	2	unstable emulsion
50	50	40	10	2	unstable isotropic
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	3	unstable emulsion
55	60	30	10	2	unstable isotropic
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	2	unstable isotropic
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	1	liquid crystal
64	90	0	10	2	unstable isotropic
65	90	10	0	1	liquid crystal
66	100	0	0	1	isotropic

Table B22 Pseudoternary phase system of caprylic/capric triglyceride :

Twen80/Span80 (1:1): propan-2-ol = 4:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	1	emulsion
4	0	30	70	1	emulsion
5	0	40	60	1	emulsion
6	0	50	50	2	unstable emulsion
7	0	60	40	2	unstable liquid crystal
8	0	70	30	2	unstable liquid crystal
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	2	unstable emulsion
17	10	50	40	1	emulsion
18	10	60	30	1	isotropic
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	2	unstable emulsion
26	20	40	40	2	unstable liquid crystal
27	20	50	30	2	unstable liquid crystal
28	20	60	20	1	isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	3	unstable emulsion
35	30	40	30	2	unstable liquid crystal
36	30	50	20	2	unstable liquid crystal
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	3	unstable emulsion
41	40	20	40	3	unstable emulsion
42	40	30	30	3	unstable emulsion
43	40	40	20	2	unstable liquid crystal
44	40	50	10	1	emulsion
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	3	unstable emulsion
48	50	20	30	2	unstable emulsion
49	50	30	20	3	unstable emulsion
50	50	40	10	2	unstable isotropic
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	3	unstable emulsion
54	60	20	20	2	unstable emulsion
55	60	30	10	2	unstable liquid crystal
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	1	emulsion
59	70	20	10	3	unstable emulsion
60	70	30	0	1	liquid crystal
61	80	0	20	2	unstable isotropic
62	80	10	10	1	emulsion
63	80	20	0	1	liquid crystal
64	90	0	10	2	unstable isotropic
65	90	10	0	1	liquid crystal
66	100	0	0	1	isotropic

Table B23   Pseudoternary phase system of caprylic/capric triglyceride :

Twen80/Span80 (2:1): propan-2-ol = 1:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	1	emulsion
4	0	30	70	1	emulsion
5	0	40	60	1	unstable isotropic
6	0	50	50	2	unstable isotropic
7	0	60	40	2	unstable isotropic
8	0	70	30	2	unstable isotropic
9	0	80	20	1	unstable isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	2	unstable liquid crystal
17	10	50	40	2	unstable liquid crystal
18	10	60	30	2	unstable liquid crystal
19	10	70	20	2	unstable liquid crystal
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	2	unstable emulsion
26	20	40	40	2	unstable isotropic
27	20	50	30	2	unstable isotropic
28	20	60	20	1	unstable isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	2	unstable liquid crystal
35	30	40	30	2	unstable liquid crystal
36	30	50	20	2	unstable isotropic
37	30	60	10	2	unstable isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	3	unstable emulsion
41	40	20	40	3	unstable emulsion
42	40	30	30	2	unstable liquid crystal
43	40	40	20	2	unstable isotropic
44	40	50	10	2	unstable isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	3	unstable emulsion
48	50	20	30	3	unstable emulsion
49	50	30	20	2	unstable isotropic
50	50	40	10	2	unstable liquid crystal
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	3	unstable emulsion
54	60	20	20	3	unstable emulsion
55	60	30	10	3	unstable isotropic
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	3	unstable emulsion
60	70	30	0	2	unstable liquid crystal
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	2	unstable liquid crystal
64	90	0	10	2	unstable isotropic
65	90	10	0	2	unstable liquid crystal
66	100	0	0	1	isotropic

Table B24   Pseudoternary phase system of caprylic/capric triglyceride :

Tween80/Span80 (2:1): propan-2-ol = 2:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	1	emulsion
4	0	30	70	2	emulsion
5	0	40	60	1	unstable emulsion
6	0	50	50	1	isotropic
7	0	60	40	1	isotropic
8	0	70	30	1	isotropic
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	3	unstable emulsion
16	10	40	50	2	unstable emulsion
17	10	50	40	3	unstable emulsion
18	10	60	30	2	unstable isotropic
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	3	unstable emulsion
26	20	40	40	2	unstable isotropic
27	20	50	30	2	unstable isotropic
28	20	60	20	2	unstable isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	3	unstable emulsion
35	30	40	30	2	unstable emulsion
36	30	50	20	2	unstable isotropic
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	3	unstable emulsion
41	40	20	40	3	unstable emulsion
42	40	30	30	3	unstable emulsion
43	40	40	20	2	unstable liquid crystal
44	40	50	10	2	unstable isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable isotropic
48	50	20	30	3	unstable emulsion
49	50	30	20	2	unstable liquid crystal
50	50	40	10	2	unstable isotropic
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	3	unstable emulsion
55	60	30	10	2	unstable isotropic
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	3	unstable emulsion
59	70	20	10	2	unstable liquid crystal
60	70	30	0	1	liquid crystal
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	1	liquid crystal
64	90	0	10	2	unstable isotropic
65	90	10	0	1	liquid crystal
66	100	0	0	1	isotropic

Table B25   Pseudoternary phase system of caprylic/capric triglyceride :

Twen80/Span80 (2:1): propan-2-ol = 4:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	1	emulsion
4	0	30	70	1	emulsion
5	0	40	60	2	unstable emulsion
6	0	50	50	1	emulsion
7	0	60	40	2	unstable isotropic
8	0	70	30	1	isotropic
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	2	unstable emulsion
17	10	50	40	2	unstable isotropic
18	10	60	30	1	isotropic
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	2	unstable emulsion
26	20	40	40	3	unstable emulsion
27	20	50	30	2	unstable liquid crystal
28	20	60	20	1	isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	3	unstable emulsion
34	30	30	40	2	unstable emulsion
35	30	40	30	2	unstable liquid crystal
36	30	50	20	2	unstable isotropic
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	3	unstable emulsion
42	40	30	30	2	unstable emulsion
43	40	40	20	2	unstable liquid crystal
44	40	50	10	2	unstable isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	3	unstable emulsion
48	50	20	30	2	unstable emulsion
49	50	30	20	3	unstable emulsion
50	50	40	10	2	unstable isotropic
51	50	50	0	2	unstable liquid crystal
52	60	0	40	2	unstable isotropic
53	60	10	30	3	unstable emulsion
54	60	20	20	2	unstable emulsion
55	60	30	10	2	unstable isotropic
56	60	40	0	2	unstable liquid crystal
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	2	unstable emulsion
60	70	30	0	2	unstable liquid crystal
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	1	liquid crystal
64	90	0	10	2	unstable isotropic
65	90	10	0	1	liquid crystal
66	100	0	0	1	isotropic

Table B26   Pseudoternary phase system of caprylic/capric triglyceride :

Brij30: propylene glycol = 1:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	2	unstable emulsion
3	0	20	80	2	unstable emulsion
4	0	30	70	1	emulsion
5	0	40	60	1	emulsion
6	0	50	50	2	unstable liquid crystal
7	0	60	40	1	isotropic
8	0	70	30	1	isotropic
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	1	emulsion
15	10	30	60	1	emulsion
16	10	40	50	2	unstable emulsion
17	10	50	40	1	liquid crystal
18	10	60	30	1	isotropic
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	3	unstable emulsion
26	20	40	40	2	unstable liquid crystal
27	20	50	30	2	unstable liquid crystal
28	20	60	20	3	unstable liquid crystal
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	2	unstable liquid crystal
35	30	40	30	2	unstable liquid crystal
36	30	50	20	2	unstable liquid crystal
37	30	60	10	2	unstable isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	2	unstable emulsion
42	40	30	30	2	unstable liquid crystal
43	40	40	20	2	unstable liquid crystal
44	40	50	10	2	unstable liquid crystal
45	40	60	0	2	unstable liquid crystal
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	2	unstable emulsion
49	50	30	20	2	unstable isotropic
50	50	40	10	2	unstable isotropic
51	50	50	0	2	unstable liquid crystal
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	3	unstable emulsion
55	60	30	10	2	unstable isotropic
56	60	40	0	2	unstable isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	2	unstable isotropic
60	70	30	0	2	unstable isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	2	unstable isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	liquid crystal
66	100	0	0	1	isotropic

Table B27   Pseudoternary phase system of caprylic/capric triglyceride :

Brij30: propylene glycol = 2:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	1	emulsion
4	0	30	70	1	emulsion
5	0	40	60	1	emulsion
6	0	50	50	1	liquid crystal
7	0	60	40	1	liquid crystal
8	0	70	30	1	liquid crystal
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	3	unstable emulsion
14	10	20	70	3	unstable liquid crystal
15	10	30	60	3	unstable liquid crystal
16	10	40	50	2	unstable isotropic
17	10	50	40	2	unstable isotropic
18	10	60	30	1	emulsion
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	3	unstable emulsion
24	20	20	60	3	unstable emulsion
25	20	30	50	3	unstable emulsion
26	20	40	40	3	unstable emulsion
27	20	50	30	2	unstable isotropic
28	20	60	20	1	isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	3	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	3	unstable emulsion
34	30	30	40	4	unstable emulsion
35	30	40	30	3	unstable isotropic
36	30	50	20	2	unstable liquid crystal
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	3	unstable emulsion
41	40	20	40	3	unstable liquid crystal
42	40	30	30	2	unstable isotropic
43	40	40	20	2	unstable isotropic
44	40	50	10	1	isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	3	unstable emulsion
48	50	20	30	2	unstable liquid crystal
49	50	30	20	2	unstable liquid crystal
50	50	40	10	2	unstable liquid crystal
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	2	unstable liquid crystal
55	60	30	10	2	unstable liquid crystal
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	2	unstable liquid crystal
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	liquid crystal
66	100	0	0	1	isotropic

Table B28   Pseudoternary phase system of caprylic/capric triglyceride :

Brij30: propylene glycol = 4:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	1	emulsion
4	0	30	70	1	emulsion
5	0	40	60	1	emulsion
6	0	50	50	1	emulsion
7	0	60	40	1	emulsion
8	0	70	30	1	emulsion
9	0	80	20	1	liquid crystal
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	2	unstable emulsion
17	10	50	40	1	emulsion
18	10	60	30	1	emulsion
19	10	70	20	1	liquid crystal
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	1	emulsion
25	20	30	50	1	emulsion
26	20	40	40	2	unstable emulsion
27	20	50	30	1	emulsion
28	20	60	20	2	unstable liquid crystal
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	2	unstable emulsion
35	30	40	30	2	unstable emulsion
36	30	50	20	2	unstable liquid crystal
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	2	unstable emulsion
42	40	30	30	3	unstable emulsion
43	40	40	20	2	unstable liquid crystal
44	40	50	10	1	isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	3	unstable isotropic
49	50	30	20	2	unstable isotropic
50	50	40	10	2	unstable isotropic
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	2	unstable emulsion
55	60	30	10	2	unstable isotropic
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	1	emulsion
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

Table B29   Pseudoternary phase system of caprylic/capric triglyceride :

Brij97: propylene glycol = 1:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	2	unstable emulsion
4	0	30	70	1	emulsion
5	0	40	60	1	emulsion
6	0	50	50	2	unstable emulsion
7	0	60	40	2	unstable emulsion
8	0	70	30	2	unstable emulsion
9	0	80	20	1	liquid crystal
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	1	emulsion
17	10	50	40	2	unstable emulsion
18	10	60	30	2	unstable emulsion
19	10	70	20	2	unstable liquid crystal
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	1	emulsion
24	20	20	60	1	emulsion
25	20	30	50	1	emulsion
26	20	40	40	1	emulsion
27	20	50	30	2	unstable emulsion
28	20	60	20	2	unstable liquid crystal
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	1	emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	2	unstable emulsion
35	30	40	30	2	unstable emulsion
36	30	50	20	2	unstable emulsion
37	30	60	10	2	unstable liquid crystal
38	30	70	0	1	unstable isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	2	unstable emulsion
42	40	30	30	2	unstable emulsion
43	40	40	20	3	unstable emulsion
44	40	50	10	2	unstable liquid crystal
45	40	60	0	1	unstable isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	2	unstable emulsion
49	50	30	20	2	unstable emulsion
50	50	40	10	3	unstable isotropic
51	50	50	0	1	unstable isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	3	unstable emulsion
54	60	20	20	2	unstable emulsion
55	60	30	10	2	unstable emulsion
56	60	40	0	1	unstable isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	2	unstable emulsion
60	70	30	0	1	unstable isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	1	unstable isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	emulsion
66	100	0	0	1	isotropic

176

Table B30   Pseudoternary phase system of caprylic/capric triglyceride :

Brij97: propylene glycol = 2:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	isotropic
3	0	20	80	1	isotropic
4	0	30	70	1	isotropic
5	0	40	60	1	isotropic
6	0	50	50	2	unstable isotropic
7	0	60	40	2	unstable isotropic
8	0	70	30	1	isotropic
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	2	unstable emulsion
17	10	50	40	2	unstable isotropic
18	10	60	30	2	unstable isotropic
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	2	unstable emulsion
26	20	40	40	2	unstable emulsion
27	20	50	30	2	unstable isotropic
28	20	60	20	1	unstable liquid crystal
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

176

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	1	emulsion
35	30	40	30	2	unstable emulsion
36	30	50	20	2	unstable liquid crystal
37	30	60	10	1	liquid crystal
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	1	emulsion
42	40	30	30	1	emulsion
43	40	40	20	2	unstable emulsion
44	40	50	10	2	unstable liquid crystal
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	1	emulsion
49	50	30	20	2	unstable emulsion
50	50	40	10	1	unstable liquid crystal
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	1	unstable emulsion
54	60	20	20	2	emulsion
55	60	30	10	2	unstable emulsion
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	1	emulsion
59	70	20	10	2	unstable emulsion
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	1	emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	2	unstable isotropic
66	100	0	0	1	isotropic

Table B31   Pseudoternary phase system of caprylic/capric triglyceride :

Brij97: propylene glycol = 4:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	isotropic
3	0	20	80	1	isotropic
4	0	30	70	1	isotropic
5	0	40	60	2	unstable isotropic
6	0	50	50	1	liquid crystal
7	0	60	40	1	liquid crystal
8	0	70	30	1	liquid crystal
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	2	unstable emulsion
17	10	50	40	2	unstable liquid crystal
18	10	60	30	2	unstable liquid crystal
19	10	70	20	1	liquid crystal
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	1	emulsion
26	20	40	40	2	unstable emulsion
27	20	50	30	2	unstable liquid crystal
28	20	60	20	2	unstable liquid crystal
29	20	70	10	2	unstable liquid crystal
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	3	unstable emulsion
35	30	40	30	2	unstable emulsion
36	30	50	20	3	unstable liquid crystal
37	30	60	10	2	unstable liquid crystal
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	2	unstable emulsion
42	40	30	30	2	unstable emulsion
43	40	40	20	2	unstable emulsion
44	40	50	10	1	liquid crystal
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	2	unstable emulsion
49	50	30	20	2	unstable liquid crystal
50	50	40	10	3	unstable liquid crystal
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	2	unstable emulsion
55	60	30	10	3	unstable liquid crystal
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	2	unstable emulsion
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	2	isotropic
66	100	0	0	1	isotropic

Table B32   Pseudoternary phase system of caprylic/capric triglyceride : Arlatone

T: propylene glycol = 1:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	1	emulsion
4	0	30	70	2	unstable liquid crystal
5	0	40	60	3	unstable liquid crystal
6	0	50	50	3	unstable liquid crystal
7	0	60	40	2	unstable isotropic
8	0	70	30	2	unstable isotropic
9	0	80	20	2	unstable isotropic
10	0	90	10	2	unstable liquid crystal
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	1	emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	3	unstable emulsion
16	10	40	50	4	unstable emulsion
17	10	50	40	4	unstable emulsion
18	10	60	30	3	unstable isotropic
19	10	70	20	3	unstable liquid crystal
20	10	80	10	3	unstable liquid crystal
21	10	90	0	3	unstable liquid crystal
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	4	unstable emulsion
26	20	40	40	4	unstable emulsion
27	20	50	30	3	unstable isotropic
28	20	60	20	3	unstable isotropic
29	20	70	10	2	unstable isotropic
30	20	80	0	3	unstable liquid crystal
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	3	unstable emulsion
34	30	30	40	3	unstable emulsion
35	30	40	30	3	unstable emulsion
36	30	50	20	3	unstable emulsion
37	30	60	10	4	unstable isotropic
38	30	70	0	3	unstable liquid crystal
39	40	0	60	2	unstable isotropic
40	40	10	50	3	unstable emulsion
41	40	20	40	3	unstable emulsion
42	40	30	30	3	unstable emulsion
43	40	40	20	2	unstable isotropic
44	40	50	10	2	unstable isotropic
45	40	60	0	3	unstable liquid crystal
46	50	0	50	2	unstable isotropic
47	50	10	40	3	unstable emulsion
48	50	20	30	3	unstable emulsion
49	50	30	20	3	unstable emulsion
50	50	40	10	3	unstable isotropic
51	50	50	0	3	unstable isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	2	unstable emulsion
55	60	30	10	3	unstable isotropic
56	60	40	0	3	unstable isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	3	unstable emulsion
60	70	30	0	3	unstable isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	2	unstable isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	2	unstable isotropic
66	100	0	0	1	isotropic

Table B33   Pseudoternary phase system of caprylic/capric triglyceride : Arlatone

T: propylene glycol = 2:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	1	emulsion
4	0	30	70	2	unstable isotropic
5	0	40	60	2	unstable isotropic
6	0	50	50	2	unstable isotropic
7	0	60	40	2	unstable isotropic
8	0	70	30	2	unstable isotropic
9	0	80	20	2	unstable isotropic
10	0	90	10	2	unstable isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	2	unstable emulsion
17	10	50	40	2	unstable emulsion
18	10	60	30	2	unstable emulsion
19	10	70	20	2	unstable emulsion
20	10	80	10	2	unstable isotropic
21	10	90	0	4	unstable isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	3	unstable emulsion
25	20	30	50	3	unstable emulsion
26	20	40	40	3	unstable emulsion
27	20	50	30	3	unstable emulsion
28	20	60	20	2	unstable emulsion
29	20	70	10	2	unstable emulsion
30	20	80	0	5	unstable liquid crystal
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	3	unstable emulsion
35	30	40	30	3	unstable emulsion
36	30	50	20	3	unstable emulsion
37	30	60	10	2	unstable isotropic
38	30	70	0	3	unstable liquid crystal
39	40	0	60	2	unstable isotropic
40	40	10	50	3	unstable emulsion
41	40	20	40	3	unstable emulsion
42	40	30	30	2	unstable emulsion
43	40	40	20	2	unstable emulsion
44	40	50	10	4	unstable isotropic
45	40	60	0	3	unstable liquid crystal
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	4	unstable emulsion
49	50	30	20	3	unstable liquid crystal
50	50	40	10	2	unstable isotropic
51	50	50	0	3	unstable isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	3	unstable emulsion
55	60	30	10	3	unstable isotropic
56	60	40	0	3	unstable isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	3	unstable isotropic
60	70	30	0	2	unstable isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	2	unstable isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	2	unstable isotropic
66	100	0	0	1	isotropic

Table B34   Pseudoternary phase system of caprylic/capric triglyceride : Arlatone

T: propylene glycol = 4:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	1	emulsion
4	0	30	70	2	unstable emulsion
5	0	40	60	2	unstable isotropic
6	0	50	50	2	unstable isotropic
7	0	60	40	2	unstable isotropic
8	0	70	30	2	unstable isotropic
9	0	80	20	2	unstable isotropic
10	0	90	10	2	unstable liquid crystal
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	2	unstable emulsion
17	10	50	40	2	unstable emulsion
18	10	60	30	2	unstable liquid crystal
19	10	70	20	2	unstable liquid crystal
20	10	80	10	1	isotropic
21	10	90	0	3	unstable isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	3	unstable emulsion
25	20	30	50	3	unstable emulsion
26	20	40	40	3	unstable emulsion
27	20	50	30	2	unstable emulsion
28	20	60	20	2	unstable liquid crystal
29	20	70	10	1	isotropic
30	20	80	0	4	unstable isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	3	unstable emulsion
35	30	40	30	3	unstable emulsion
36	30	50	20	2	unstable isotropic
37	30	60	10	1	isotropic
38	30	70	0	3	unstable liquid crystal
39	40	0	60	2	unstable isotropic
40	40	10	50	3	unstable emulsion
41	40	20	40	2	unstable emulsion
42	40	30	30	2	unstable emulsion
43	40	40	20	2	unstable isotropic
44	40	50	10	1	isotropic
45	40	60	0	2	unstable isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	2	unstable emulsion
49	50	30	20	2	unstable emulsion
50	50	40	10	1	emulsion
51	50	50	0	2	unstable isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	2	unstable emulsion
55	60	30	10	2	unstable isotropic
56	60	40	0	2	unstable isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	2	unstable isotropic
60	70	30	0	2	unstable isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	2	unstable isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	2	unstable isotropic
66	100	0	0	1	isotropic

Table B35   Pseudoternary phase system of caprylic/capric triglyceride :

Tween80/Span80 (1:1): propylene glycol = 1:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	2	unstable emulsion
4	0	30	70	2	unstable emulsion
5	0	40	60	2	unstable emulsion
6	0	50	50	2	unstable emulsion
7	0	60	40	2	unstable emulsion
8	0	70	30	2	unstable emulsion
9	0	80	20	2	unstable emulsion
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	1	emulsion
15	10	30	60	1	emulsion
16	10	40	50	1	emulsion
17	10	50	40	2	unstable emulsion
18	10	60	30	3	unstable emulsion
19	10	70	20	2	unstable emulsion
20	10	80	10	1	isotropic
21	10	90	0	3	unstable liquid crystal
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	1	emulsion
25	20	30	50	1	emulsion
26	20	40	40	1	emulsion
27	20	50	30	2	emulsion
28	20	60	20	3	isotropic
29	20	70	10	2	unstable isotropic
30	20	80	0	2	unstable isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	2	unstable emulsion
35	30	40	30	3	unstable emulsion
36	30	50	20	3	unstable emulsion
37	30	60	10	2	unstable isotropic
38	30	70	0	2	unstable liquid crystal
39	40	0	60	2	unstable isotropic
40	40	10	50	3	unstable emulsion
41	40	20	40	3	unstable emulsion
42	40	30	30	2	unstable emulsion
43	40	40	20	3	unstable emulsion
44	40	50	10	2	unstable isotropic
45	40	60	0	2	unstable liquid crystal
46	50	0	50	2	unstable isotropic
47	50	10	40	3	unstable emulsion
48	50	20	30	3	unstable emulsion
49	50	30	20	3	unstable emulsion
50	50	40	10	2	unstable isotropic
51	50	50	0	2	unstable liquid crystal
52	60	0	40	2	unstable isotropic
53	60	10	30	3	unstable emulsion
54	60	20	20	4	unstable emulsion
55	60	30	10	3	unstable emulsion
56	60	40	0	2	unstable isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	3	unstable emulsion
59	70	20	10	4	unstable emulsion
60	70	30	0	2	unstable isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	4	unstable emulsion
63	80	20	0	2	unstable isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

Table B36   Pseudoternary phase system of caprylic/capric triglyceride :

Tween80/Span80 (1:1): propylene glycol = 2:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	2	unstable emulsion
3	0	20	80	2	unstable emulsion
4	0	30	70	2	unstable emulsion
5	0	40	60	2	unstable emulsion
6	0	50	50	2	unstable emulsion
7	0	60	40	1	emulsion
8	0	70	30	2	unstable emulsion
9	0	80	20	2	unstable emulsion
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	1	emulsion
17	10	50	40	1	emulsion
18	10	60	30	2	unstable emulsion
19	10	70	20	2	unstable liquid crystal
20	10	80	10	1	isotropic
21	10	90	0	2	unstable isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	2	unstable emulsion
26	20	40	40	2	unstable emulsion
27	20	50	30	2	unstable emulsion
28	20	60	20	2	unstable liquid crystal
29	20	70	10	1	isotropic
30	20	80	0	2	unstable isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	2	unstable emulsion
35	30	40	30	2	unstable emulsion
36	30	50	20	2	unstable liquid crystal
37	30	60	10	2	unstable isotropic
38	30	70	0	2	unstable isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	2	unstable emulsion
42	40	30	30	2	unstable emulsion
43	40	40	20	2	unstable emulsion
44	40	50	10	2	unstable liquid crystal
45	40	60	0	2	unstable liquid crystal
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	3	unstable emulsion
49	50	30	20	2	unstable isotropic
50	50	40	10	2	unstable isotropic
51	50	50	0	2	unstable liquid crystal
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	2	unstable emulsion
55	60	30	10	2	unstable isotropic
56	60	40	0	2	unstable isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	3	unstable emulsion
59	70	20	10	3	unstable emulsion
60	70	30	0	2	unstable isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	3	unstable emulsion
63	80	20	0	2	unstable isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	2	unstable isotropic
66	100	0	0	1	isotropic

Table B37   Pseudotemary phase system of caprylic/capric triglyceride :

Tween80/Span80 (1:1): propylene glycol = 4:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	2	unstable emulsion
3	0	20	80	2	unstable emulsion
4	0	30	70	2	unstable emulsion
5	0	40	60	2	unstable emulsion
6	0	50	50	2	unstable emulsion
7	0	60	40	2	unstable emulsion
8	0	70	30	2	unstable emulsion
9	0	80	20	2	unstable emulsion
10	0	90	10	1	liquid crystal
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	2	unstable emulsion
17	10	50	40	2	unstable emulsion
18	10	60	30	2	unstable emulsion
19	10	70	20	2	unstable emulsion
20	10	80	10	1	isotropic
21	10	90	0	3	unstable liquid crystal
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	2	unstable emulsion
26	20	40	40	2	unstable emulsion
27	20	50	30	2	unstable emulsion
28	20	60	20	2	unstable emulsion
29	20	70	10	1	isotropic
30	20	80	0	2	unstable isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	2	unstable emulsion
35	30	40	30	2	unstable emulsion
36	30	50	20	2	unstable liquid crystal
37	30	60	10	1	isotropic
38	30	70	0	2	unstable isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	2	unstable emulsion
42	40	30	30	2	unstable emulsion
43	40	40	20	3	unstable liquid crystal
44	40	50	10	2	unstable isotropic
45	40	60	0	2	unstable isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	2	unstable emulsion
49	50	30	20	2	unstable isotropic
50	50	40	10	2	unstable isotropic
51	50	50	0	2	unstable isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	2	unstable emulsion
55	60	30	10	2	unstable isotropic
56	60	40	0	2	unstable isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	2	unstable emulsion
60	70	30	0	2	unstable isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	3	unstable emulsion
63	80	20	0	2	unstable isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	2	unstable isotropic
66	100	0	0	1	isotropic

Table B38   Pseudoternary phase system of caprylic/capric triglyceride :

Tween80/Span80 (2:1): propylene glycol = 1:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	2	unstable emulsion
4	0	30	70	2	unstable emulsion
5	0	40	60	1	emulsion
6	0	50	50	1	emulsion
7	0	60	40	2	unstable liquid crystal
8	0	70	30	2	unstable liquid crystal
9	0	80	20	2	unstable liquid crystal
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	1	emulsion
14	10	20	70	1	emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	2	unstable emulsion
17	10	50	40	2	unstable emulsion
18	10	60	30	2	unstable emulsion
19	10	70	20	2	unstable liquid crystal
20	10	80	10	1	liquid crystal
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	1	emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	2	unstable emulsion
26	20	40	40	2	unstable emulsion
27	20	50	30	2	unstable emulsion
28	20	60	20	2	unstable liquid crystal
29	20	70	10	2	unstable liquid crystal
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	1	emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	2	unstable emulsion
35	30	40	30	2	unstable emulsion
36	30	50	20	2	unstable liquid crystal
37	30	60	10	2	unstable liquid crystal
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	2	unstable emulsion
42	40	30	30	2	unstable emulsion
43	40	40	20	2	unstable isotropic
44	40	50	10	2	unstable liquid crystal
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	2	unstable emulsion
49	50	30	20	2	unstable emulsion
50	50	40	10	2	unstable emulsion
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	2	unstable emulsion
55	60	30	10	3	unstable emulsion
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	3	unstable emulsion
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	3	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

Table B39   Pseudoternary phase system of caprylic/capric triglyceride :

Tween80/Span80 (2:1): propylene glycol = 2:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	2	unstable emulsion
4	0	30	70	2	unstable emulsion
5	0	40	60	1	emulsion
6	0	50	50	2	unstable emulsion
7	0	60	40	2	unstable liquid crystal
8	0	70	30	2	unstable liquid crystal
9	0	80	20	2	unstable isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	1	emulsion
14	10	20	70	1	emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	2	unstable emulsion
17	10	50	40	2	unstable emulsion
18	10	60	30	2	unstable isotropic
19	10	70	20	2	unstable liquid crystal
20	10	80	10	1	liquid crystal
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	1	emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	2	unstable emulsion
26	20	40	40	2	unstable emulsion
27	20	50	30	2	unstable liquid crystal
28	20	60	20	2	unstable liquid crystal
29	20	70	10	2	unstable liquid crystal
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	1	emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	2	unstable emulsion
35	30	40	30	2	unstable emulsion
36	30	50	20	2	unstable liquid crystal
37	30	60	10	2	unstable isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	2	unstable emulsion
42	40	30	30	2	unstable emulsion
43	40	40	20	2	unstable emulsion
44	40	50	10	2	unstable liquid crystal
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	2	unstable emulsion
49	50	30	20	2	unstable isotropic
50	50	40	10	2	unstable liquid crystal
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	2	unstable emulsion
55	60	30	10	2	unstable isotropic
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	2	unstable emulsion
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

Table B40   Pseudoternary phase system of caprylic/capric triglyceride :

Tween80/Span80 (2:1): propylene glycol =4:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	2	unstable emulsion
3	0	20	80	2	unstable emulsion
4	0	30	70	2	unstable emulsion
5	0	40	60	1	emulsion
6	0	50	50	2	unstable emulsion
7	0	60	40	2	unstable emulsion
8	0	70	30	2	unstable liquid crystal
9	0	80	20	2	unstable liquid crystal
10	0	90	10	1	liquid crystal
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	1	emulsion
14	10	20	70	1	emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	2	unstable emulsion
17	10	50	40	2	unstable emulsion
18	10	60	30	2	unstable isotropic
19	10	70	20	2	unstable liquid crystal
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	1	emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	2	unstable emulsion
26	20	40	40	2	unstable emulsion
27	20	50	30	2	unstable emulsion
28	20	60	20	2	unstable liquid crystal
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	1	emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	2	unstable emulsion
35	30	40	30	2	unstable emulsion
36	30	50	20	2	unstable liquid crystal
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	2	unstable emulsion
42	40	30	30	2	unstable emulsion
43	40	40	20	2	unstable liquid crystal
44	40	50	10	2	unstable isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	2	unstable emulsion
49	50	30	20	2	unstable emulsion
50	50	40	10	2	unstable liquid crystal
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	2	unstable emulsion
55	60	30	10	2	unstable liquid crystal
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	2	unstable isotropic
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

Table B41   Pseudoternary phase system of IPM: Brij30: propan-2-ol = 1:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	2	unstable isotropic
3	0	20	80	2	unstable isotropic
4	0	30	70	2	unstable isotropic
5	0	40	60	1	isotropic
6	0	50	50	1	isotropic
7	0	60	40	1	isotropic
8	0	70	30	1	isotropic
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	3	unstable emulsion
14	10	20	70	2	unstable isotropic
15	10	30	60	2	unstable isotropic
16	10	40	50	2	unstable isotropic
17	10	50	40	1	isotropic
18	10	60	30	1	isotropic
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	3	unstable isotropic
24	20	20	60	3	unstable isotropic
25	20	30	50	3	unstable isotropic
26	20	40	40	2	unstable isotropic
27	20	50	30	1	isotropic
28	20	60	20	1	isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable isotropic

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	4	unstable liquid crystal
34	30	30	40	2	unstable isotropic
35	30	40	30	2	unstable isotropic
36	30	50	20	1	isotropic
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	3	unstable emulsion
41	40	20	40	3	unstable isotropic
42	40	30	30	2	unstable isotropic
43	40	40	20	2	unstable isotropic
44	40	50	10	1	isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	3	unstable emulsion
48	50	20	30	2	unstable isotropic
49	50	30	20	2	unstable isotropic
50	50	40	10	2	unstable isotropic
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	3	unstable emulsion
54	60	20	20	2	unstable isotropic
55	60	30	10	2	unstable isotropic
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	3	unstable isotropic
59	70	20	10	2	unstable isotropic
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable isotropic
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

Table B42   Pseudoternary phase system of IPM: Brij30: propan-2-ol = 2:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	1	emulsion
4	0	30	70	2	unstable isotropic
5	0	40	60	1	isotropic
6	0	50	50	1	isotropic
7	0	60	40	1	isotropic
8	0	70	30	1	isotropic
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	3	unstable emulsion
14	10	20	70	3	unstable isotropic
15	10	30	60	3	unstable isotropic
16	10	40	50	2	unstable isotropic
17	10	50	40	1	isotropic
18	10	60	30	1	isotropic
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	3	unstable isotropic
24	20	20	60	3	unstable isotropic
25	20	30	50	2	unstable isotropic
26	20	40	40	2	unstable isotropic
27	20	50	30	1	isotropic
28	20	60	20	1	isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	4	unstable emulsion

201

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	4	unstable emulsion
34	30	30	40	3	unstable liquid crystal
35	30	40	30	2	unstable isotropic
36	30	50	20	1	isotropic
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	3	unstable emulsion
41	40	20	40	4	unstable liquid crystal
42	40	30	30	3	unstable liquid crystal
43	40	40	20	1	isotropic
44	40	50	10	1	isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	3	unstable emulsion
48	50	20	30	4	unstable emulsion
49	50	30	20	3	unstable liquid crystal
50	50	40	10	1	isotropic
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	3	unstable emulsion
54	60	20	20	2	unstable liquid crystal
55	60	30	10	1	isotropic
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	3	unstable emulsion
59	70	20	10	2	unstable liquid crystal
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

Table B43   Pseudoternary phase system of IPM: Brij30: propan-2-ol = 4:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	2	unstable emulsion
4	0	30	70	1	emulsion
5	0	40	60	2	unstable liquid crystal
6	0	50	50	2	unstable liquid crystal
7	0	60	40	1	isotropic
8	0	70	30	1	isotropic
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	3	unstable emulsion
14	10	20	70	3	unstable liquid crystal
15	10	30	60	3	unstable liquid crystal
16	10	40	50	3	unstable liquid crystal
17	10	50	40	1	liquid crystal
18	10	60	30	1	isotropic
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	3	unstable emulsion
24	20	20	60	3	unstable liquid crystal
25	20	30	50	3	unstable liquid crystal
26	20	40	40	3	unstable liquid crystal
27	20	50	30	2	unstable isotropic
28	20	60	20	1	isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	5	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	4	unstable liquid crystal
34	30	30	40	3	unstable liquid crystal
35	30	40	30	2	unstable isotropic
36	30	50	20	1	isotropic
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	5	unstable emulsion
41	40	20	40	5	unstable emulsion
42	40	30	30	3	unstable liquid crystal
43	40	40	20	1	isotropic
44	40	50	10	1	isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	3	unstable emulsion
48	50	20	30	5	unstable liquid crystal
49	50	30	20	3	unstable emulsion
50	50	40	10	1	isotropic
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	3	unstable emulsion
54	60	20	20	3	unstable liquid crystal
55	60	30	10	1	isotropic
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	3	unstable emulsion
59	70	20	10	3	unstable liquid crystal
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

Table B44   Pseudoternary phase system of IPM: Brij97: propan-2-ol = 1:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	isotropic
3	0	20	80	1	isotropic
4	0	30	70	1	isotropic
5	0	40	60	1	isotropic
6	0	50	50	1	isotropic
7	0	60	40	1	isotropic
8	0	70	30	1	isotropic
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	1	isotropic
17	10	50	40	1	isotropic
18	10	60	30	1	isotropic
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	3	unstable emulsion
26	20	40	40	2	unstable isotropic
27	20	50	30	1	isotropic
28	20	60	20	1	isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

205

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	3	unstable emulsion
34	30	30	40	2	unstable isotropic
35	30	40	30	2	unstable isotropic
36	30	50	20	1	isotropic
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	3	unstable emulsion
41	40	20	40	3	unstable emulsion
42	40	30	30	2	unstable isotropic
43	40	40	20	2	unstable isotropic
44	40	50	10	1	isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	3	unstable emulsion
48	50	20	30	3	unstable emulsion
49	50	30	20	2	unstable isotropic
50	50	40	10	1	isotropic
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	3	unstable emulsion
54	60	20	20	4	unstable emulsion
55	60	30	10	2	unstable isotropic
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	3	unstable liquid crystal
59	70	20	10	3	unstable liquid crystal
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	4	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	liquid crystal
66	100	0	0	1	isotropic

Table B45   Pseudoternary phase system of IPM: Brij97: propan-2-ol = 2:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	isotropic
3	0	20	80	1	isotropic
4	0	30	70	1	isotropic
5	0	40	60	1	isotropic
6	0	50	50	1	isotropic
7	0	60	40	1	isotropic
8	0	70	30	1	isotropic
9	0	80	20	2	unstable liquid crystal
10	0	90	10	2	unstable liquid crystal
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	3	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	1	isotropic
17	10	50	40	1	isotropic
18	10	60	30	1	isotropic
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	3	unstable emulsion
26	20	40	40	2	unstable emulsion
27	20	50	30	1	isotropic
28	20	60	20	1	isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	4	unstable emulsion
35	30	40	30	2	unstable isotropic
36	30	50	20	1	isotropic
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	1	emulsion
42	40	30	30	4	unstable emulsion
43	40	40	20	1	isotropic
44	40	50	10	1	isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable isotropic
48	50	20	30	2	unstable isotropic
49	50	30	20	2	unstable liquid crystal
50	50	40	10	1	isotropic
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	2	unstable isotropic
55	60	30	10	2	unstable isotropic
56	60	40	0	1	unstable isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	2	unstable isotropic
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable isotropic
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

Table B46   Pseudoternary phase system of IPM: Brij97: propan-2-ol = 4:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	isotropic
3	0	20	80	1	isotropic
4	0	30	70	1	isotropic
5	0	40	60	1	isotropic
6	0	50	50	1	isotropic
7	0	60	40	1	isotropic
8	0	70	30	1	isotropic
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	2	unstable liquid crystal
17	10	50	40	2	unstable liquid crystal
18	10	60	30	2	unstable liquid crystal
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	1	emulsion
26	20	40	40	2	unstable isotropic
27	20	50	30	2	unstable liquid crystal
28	20	60	20	2	unstable liquid crystal
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	2	unstable emulsion
35	30	40	30	2	unstable liquid crystal
36	30	50	20	2	unstable liquid crystal
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	3	unstable emulsion
42	40	30	30	2	unstable isotropic
43	40	40	20	2	unstable liquid crystal
44	40	50	10	1	isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	2	unstable isotropic
49	50	30	20	2	unstable isotropic
50	50	40	10	1	isotropic
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	3	unstable emulsion
54	60	20	20	2	unstable emulsion
55	60	30	10	2	unstable liquid crystal
56	60	40	0	2	unstable isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	2	unstable isotropic
60	70	30	0	2	unstable isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	2	unstable isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	2	unstable isotropic
66	100	0	0	1	isotropic

Table B47   Pseudoternary phase system of IPM: Arlatone T: propan-2-ol = 1:1:

Water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	1	emulsion
4	0	30	70	3	unstable emulsion
5	0	40	60	2	unstable liquid crystal
6	0	50	50	2	unstable liquid crystal
7	0	60	40	2	unstable isotropic
8	0	70	30	2	unstable isotropic
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	1	emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	1	emulsion
16	10	40	50	2	unstable liquid crystal
17	10	50	40	2	unstable liquid crystal
18	10	60	30	2	unstable liquid crystal
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	liquid crystal
22	20	0	80	2	unstable isotropic
23	20	10	70	1	emulsion
24	20	20	60	1	emulsion
25	20	30	50	3	unstable emulsion
26	20	40	40	2	unstable liquid crystal
27	20	50	30	2	unstable liquid crystal
28	20	60	20	1	liquid crystal
29	20	70	10	1	isotropic
30	20	80	0	1	liquid crystal
31	30	0	70	2	unstable isotropic
32	30	10	60	1	emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	1	emulsion
34	30	30	40	2	unstable liquid crystal
35	30	40	30	2	unstable liquid crystal
36	30	50	20	2	unstable liquid crystal
37	30	60	10	1	isotropic
38	30	70	0	1	liquid crystal
39	40	0	60	2	unstable isotropic
40	40	10	50	3	unstable emulsion
41	40	20	40	3	unstable emulsion
42	40	30	30	2	unstable liquid crystal
43	40	40	20	2	unstable liquid crystal
44	40	50	10	1	isotropic
45	40	60	0	1	liquid crystal
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	2	unstable liquid crystal
49	50	30	20	2	unstable liquid crystal
50	50	40	10	1	liquid crystal
51	50	50	0	1	liquid crystal
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	3	unstable emulsion
55	60	30	10	2	unstable isotropic
56	60	40	0	1	liquid crystal
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	2	unstable isotropic
60	70	30	0	1	liquid crystal
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable liquid crystal
63	80	20	0	1	liquid crystal
64	90	0	10	2	unstable isotropic
65	90	10	0	1	liquid crystal
66	100	0	0	1	isotropic

Table B48   Pseudoternary phase system of IPM: Arlatone T: propan-2-ol = 2:1:

Water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	2	unstable emulsion
4	0	30	70	1	emulsion
5	0	40	60	2	unstable emulsion
6	0	50	50	3	unstable emulsion
7	0	60	40	2	unstable isotropic
8	0	70	30	2	unstable isotropic
9	0	80	20	2	unstable isotropic
10	0	90	10	2	unstable isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	1	emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	2	unstable emulsion
17	10	50	40	2	unstable isotropic
18	10	60	30	2	unstable isotropic
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	3	unstable emulsion
26	20	40	40	2	unstable isotropic
27	20	50	30	3	unstable liquid crystal
28	20	60	20	1	isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	3	unstable emulsion
35	30	40	30	4	unstable emulsion
36	30	50	20	2	unstable isotropic
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	2	unstable emulsion
42	40	30	30	2	unstable emulsion
43	40	40	20	2	unstable emulsion
44	40	50	10	1	isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	2	unstable emulsion
49	50	30	20	1	emulsion
50	50	40	10	1	isotropic
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	3	unstable emulsion
54	60	20	20	1	emulsion
55	60	30	10	1	emulsion
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	3	unstable emulsion
59	70	20	10	1	emulsion
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

Table B49   Pseudoternary phase system of IPM: Arlatone T: Propan-2-ol = 4:1:

Water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	2	unstable liquid crystal
4	0	30	70	1	emulsion
5	0	40	60	1	emulsion
6	0	50	50	1	emulsion
7	0	60	40	2	unstable emulsion
8	0	70	30	1	isotropic
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	1	emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	3	unstable emulsion
17	10	50	40	3	unstable isotropic
18	10	60	30	2	unstable isotropic
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	2	unstable emulsion
26	20	40	40	2	unstable liquid crystal
27	20	50	30	4	unstable liquid crystal
28	20	60	20	1	isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	2	unstable emulsion
35	30	40	30	3	unstable liquid crystal
36	30	50	20	1	emulsion
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	2	unstable emulsion
42	40	30	30	2	unstable emulsion
43	40	40	20	2	unstable emulsion
44	40	50	10	1	isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable isotropic
48	50	20	30	3	unstable emulsion
49	50	30	20	2	unstable isotropic
50	50	40	10	1	isotropic
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	1	emulsion
55	60	30	10	1	isotropic
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	1	emulsion
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	3	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

Table B50   Pseudoternary phase system of IPM: Tween80/Span80 (1:1): propan-2-

ol = 1:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	2	unstable emulsion
3	0	20	80	2	unstable emulsion
4	0	30	70	1	emulsion
5	0	40	60	2	unstable isotropic
6	0	50	50	2	unstable isotropic
7	0	60	40	2	unstable isotropic
8	0	70	30	2	unstable liquid crystal
9	0	80	20	3	unstable isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	3	unstable emulsion
15	10	30	60	2	unstable isotropic
16	10	40	50	2	unstable isotropic
17	10	50	40	3	unstable isotropic
18	10	60	30	1	emulsion
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	2	unstable isotropic
26	20	40	40	2	unstable isotropic
27	20	50	30	2	unstable isotropic
28	20	60	20	1	isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	3	unstable emulsion
34	30	30	40	2	unstable isotropic
35	30	40	30	2	unstable isotropic
36	30	50	20	2	unstable isotropic
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	3	unstable emulsion
41	40	20	40	4	unstable emulsion
42	40	30	30	2	unstable isotropic
43	40	40	20	2	unstable isotropic
44	40	50	10	1	isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	3	unstable emulsion
48	50	20	30	2	unstable emulsion
49	50	30	20	3	unstable liquid crystal
50	50	40	10	2	unstable isotropic
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	4	unstable emulsion
54	60	20	20	3	unstable isotropic
55	60	30	10	3	unstable isotropic
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	4	unstable emulsion
59	70	20	10	3	unstable isotropic
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	3	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

Table B51   Pseudoternary phase system of IPM: Tween80/Span80 (1:1): propan-2-

ol = (2:1): water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	1	emulsion
4	0	30	70	2	unstable emulsion
5	0	40	60	1	emulsion
6	0	50	50	1	isotropic
7	0	60	40	1	isotropic
8	0	70	30	1	isotropic
9	0	80	20	1	liquid crystal
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable isotropic
16	10	40	50	2	unstable isotropic
17	10	50	40	1	isotropic
18	10	60	30	1	isotropic
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	2	unstable isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	1	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	3	unstable emulsion
26	20	40	40	2	unstable isotropic
27	20	50	30	2	unstable isotropic
28	20	60	20	1	isotropic
29	20	70	10	1	isotropic
30	20	80	0	2	unstable isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	1	emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	3	unstable emulsion
35	30	40	30	2	unstable isotropic
36	30	50	20	2	unstable isotropic
37	30	60	10	1	isotropic
38	30	70	0	2	unstable isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	2	unstable emulsion
42	40	30	30	3	unstable emulsion
43	40	40	20	2	unstable isotropic
44	40	50	10	1	isotropic
45	40	60	0	2	unstable isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	2	unstable emulsion
49	50	30	20	3	unstable emulsion
50	50	40	10	2	unstable isotropic
51	50	50	0	2	unstable isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	3	unstable emulsion
55	60	30	10	2	unstable isotropic
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	3	unstable emulsion
59	70	20	10	4	unstable emulsion
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	3	unstable emulsion
63	80	20	0	2	unstable isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	2	unstable isotropic
66	100	0	0	1	isotropic

Table B52   Pseudoternary phase system of IPM: Tween80/Span80 (1:1): propan-2-

ol = (4:1): water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	1	emulsion
4	0	30	70	1	emulsion
5	0	40	60	1	emulsion
6	0	50	50	2	unstable emulsion
7	0	60	40	2	unstable emulsion
8	0	70	30	2	unstable emulsion
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	3	unstable emulsion
17	10	50	40	2	unstable emulsion
18	10	60	30	2	unstable isotropic
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	2	unstable isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	1	emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	2	unstable emulsion
26	20	40	40	3	unstable emulsion
27	20	50	30	1	isotropic
28	20	60	20	2	unstable isotropic
29	20	70	10	2	unstable isotropic
30	20	80	0	2	unstable isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	1	emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	2	unstable emulsion
35	30	40	30	2	unstable isotropic
36	30	50	20	2	unstable liquid crystal
37	30	60	10	1	isotropic
38	30	70	0	2	unstable isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	1	emulsion
41	40	20	40	1	emulsion
42	40	30	30	3	unstable emulsion
43	40	40	20	1	isotropic
44	40	50	10	1	isotropic
45	40	60	0	2	unstable isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	4	unstable emulsion
48	50	20	30	3	unstable emulsion
49	50	30	20	2	unstable isotropic
50	50	40	10	1	isotropic
51	50	50	0	2	unstable isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	3	unstable emulsion
55	60	30	10	1	isotropic
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable liquid crystal
59	70	20	10	3	unstable liquid crystal
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	3	unstable emulsion
63	80	20	0	2	unstable isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	2	unstable isotropic
66	100	0	0	1	isotropic

Table B53 Pseudotemary phase system of IPM: Tween80/Span80 (2:1): propan-2-

ol = 1:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	1	emulsion
4	0	30	70	1	emulsion
5	0	40	60	2	unstable isotropic
6	0	50	50	2	unstable isotropic
7	0	60	40	2	unstable isotropic
8	0	70	30	2	unstable isotropic
9	0	80	20	2	unstable isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	2	unstable isotropic
17	10	50	40	2	unstable isotropic
18	10	60	30	1	isotropic
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	2	unstable isotropic
26	20	40	40	2	unstable isotropic
27	20	50	30	2	unstable isotropic
28	20	60	20	1	isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	1	unstable emulsion
34	30	30	40	2	unstable isotropic
35	30	40	30	2	unstable isotropic
36	30	50	20	2	unstable isotropic
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	2	unstable emulsion
42	40	30	30	2	unstable isotropic
43	40	40	20	2	unstable isotropic
44	40	50	10	1	isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	2	unstable emulsion
49	50	30	20	2	unstable isotropic
50	50	40	10	2	unstable isotropic
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	3	unstable emulsion
54	60	20	20	2	unstable emulsion
55	60	30	10	3	unstable isotropic
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	2	unstable isotropic
60	70	30	0	1	emulsion
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	1	emulsion
64	90	0	10	2	unstable isotropic
65	90	10	0	1	emulsion
66	100	0	0	1	isotropic

Table B54 Pseudoternary phase system of IPM: Tween80/Span80 (2:1): propan-2-

   ol = 2:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	1	emulsion
4	0	30	70	1	emulsion
5	0	40	60	2	unstable emulsion
6	0	50	50	1	isotropic
7	0	60	40	1	isotropic
8	0	70	30	1	isotropic
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	3	unstable isotropic
17	10	50	40	1	isotropic
18	10	60	30	1	isotropic
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	3	unstable emulsion
26	20	40	40	2	unstable isotropic
27	20	50	30	2	unstable isotropic
28	20	60	20	1	isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	2	unstable emulsion
35	30	40	30	2	unstable isotropic
36	30	50	20	1	isotropic
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	3	unstable emulsion
42	40	30	30	3	unstable emulsion
43	40	40	20	2	unstable isotropic
44	40	50	10	1	isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	3	unstable emulsion
49	50	30	20	2	unstable emulsion
50	50	40	10	2	unstable isotropic
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	2	unstable emulsion
55	60	30	10	2	unstable isotropic
56	60	40	0	2	unstable liquid crystal
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	3	unstable isotropic
60	70	30	0	2	unstable liquid crystal
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	2	unstable liquid crystal
64	90	0	10	2	unstable isotropic
65	90	10	0	2	unstable liquid crystal
66	100	0	0	1	isotropic

226

Table B55 Pseudoternary phase system of IPM: Tween80/Span80 (2:1): propan-2-
ol = 4:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	1	emulsion
4	0	30	70	1	emulsion
5	0	40	60	2	unstable emulsion
6	0	50	50	1	emulsion
7	0	60	40	2	unstable isotropic
8	0	70	30	1	isotropic
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	1	emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	1	liquid crystal
17	10	50	40	1	liquid crystal
18	10	60	30	1	isotropic
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	1	emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	2	unstable emulsion
26	20	40	40	2	unstable isotropic
27	20	50	30	1	isotropic
28	20	60	20	1	isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	1	emulsion

227

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	2	unstable emulsion
35	30	40	30	2	unstable isotropic
36	30	50	20	1	isotropic
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	1	emulsion
41	40	20	40	2	unstable emulsion
42	40	30	30	3	unstable emulsion
43	40	40	20	2	unstable isotropic
44	40	50	10	1	isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	2	unstable emulsion
49	50	30	20	3	unstable liquid crystal
50	50	40	10	1	isotropic
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	2	unstable emulsion
55	60	30	10	2	unstable isotropic
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	3	unstable liquid crystal
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	2	unstable isotropic
66	100	0	0	1	isotropic

Table B56 Pseudoternary phase system of IPM: Brij30: PG = 1:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	2	unstable emulsion
3	0	20	80	2	unstable emulsion
4	0	30	70	1	emulsion
5	0	40	60	1	emulsion
6	0	50	50	2	unstable liquid crystal
7	0	60	40	1	isotropic
8	0	70	30	1	isotropic
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	3	unstable liquid crystal
15	10	30	60	3	unstable liquid crystal
16	10	40	50	2	unstable isotropic
17	10	50	40	1	liquid crystal
18	10	60	30	1	isotropic
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable liquid crystal
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	3	unstable emulsion
26	20	40	40	3	unstable liquid crystal
27	20	50	30	1	isotropic
28	20	60	20	1	isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	3	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	2	unstable emulsion
35	30	40	30	1	isotropic
36	30	50	20	1	isotropic
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	2	unstable emulsion
42	40	30	30	2	unstable isotropic
43	40	40	20	2	unstable isotropic
44	40	50	10	1	isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	2	unstable emulsion
49	50	30	20	2	unstable isotropic
50	50	40	10	2	unstable isotropic
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	3	unstable emulsion
55	60	30	10	2	unstable isotropic
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	2	unstable isotropic
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

Table B57 Pseudoternary phase system of IPM: Brij30: propylene glycol = 2:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	1	emulsion
4	0	30	70	1	emulsion
5	0	40	60	1	emulsion
6	0	50	50	1	liquid crystal
7	0	60	40	1	liquid crystal
8	0	70	30	1	liquid crystal
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	3	unstable isotropic
14	10	20	70	3	unstable liquid crystal
15	10	30	60	3	unstable liquid crystal
16	10	40	50	3	unstable liquid crystal
17	10	50	40	2	unstable liquid crystal
18	10	60	30	1	liquid crystal
19	10	70	20	1	liquid crystal
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	3	unstable emulsion
24	20	20	60	3	unstable emulsion
25	20	30	50	3	unstable liquid crystal
26	20	40	40	3	unstable liquid crystal
27	20	50	30	3	unstable liquid crystal
28	20	60	20	1	liquid crystal
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	4	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable isotropic
34	30	30	40	4	unstable emulsion
35	30	40	30	3	unstable liquid crystal
36	30	50	20	1	isotropic
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	4	unstable liquid crystal
42	40	30	30	3	unstable liquid crystal
43	40	40	20	2	unstable isotropic
44	40	50	10	1	isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	4	unstable emulsion
49	50	30	20	3	unstable emulsion
50	50	40	10	1	isotropic
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	3	unstable emulsion
55	60	30	10	2	unstable isotropic
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	2	unstable liquid crystal
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

Table B58 Pseudoternary phase system of IPM: Brij30: propylene glycol = 4:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	1	emulsion
4	0	30	70	1	emulsion
5	0	40	60	1	emulsion
6	0	50	50	1	emulsion
7	0	60	40	1	emulsion
8	0	70	30	1	emulsion
9	0	80	20	1	liquid crystal
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	3	unstable emulsion
14	10	20	70	3	unstable isotropic
15	10	30	60	3	unstable isotropic
16	10	40	50	3	unstable isotropic
17	10	50	40	2	unstable liquid crystal
18	10	60	30	2	unstable liquid crystal
19	10	70	20	2	unstable liquid crystal
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	3	unstable emulsion
24	20	20	60	3	unstable emulsion
25	20	30	50	3	unstable isotropic
26	20	40	40	3	unstable liquid crystal
27	20	50	30	2	unstable liquid crystal
28	20	60	20	2	unstable liquid crystal
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	4	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	3	unstable emulsion
35	30	40	30	3	unstable liquid crystal
36	30	50	20	2	unstable liquid crystal
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	3	unstable emulsion
41	40	20	40	2	unstable emulsion
42	40	30	30	2	unstable emulsion
43	40	40	20	2	unstable liquid crystal
44	40	50	10	1	isotropic
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	3	unstable emulsion
48	50	20	30	3	unstable emulsion
49	50	30	20	2	unstable emulsion
50	50	40	10	1	isotropic
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	3	unstable emulsion
54	60	20	20	3	unstable emulsion
55	60	30	10	2	unstable liquid crystal
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	3	unstable emulsion
59	70	20	10	2	unstable isotropic
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

Table B59 Pseudoternary phase system of IPM: Brij97: propylene glycol =1:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	isotropic
3	0	20	80	1	isotropic
4	0	30	70	1	isotropic
5	0	40	60	1	isotropic
6	0	50	50	1	isotropic
7	0	60	40	1	isotropic
8	0	70	30	1	isotropic
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	1	emulsion
17	10	50	40	1	isotropic
18	10	60	30	1	isotropic
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	2	unstable isotropic
26	20	40	40	1	emulsion
27	20	50	30	2	unstable emulsion
28	20	60	20	2	unstable isotropic
29	20	70	10	1	isotropic
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	1	emulsion
35	30	40	30	2	unstable emulsion
36	30	50	20	2	unstable isotropic
37	30	60	10	1	isotropic
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	2	unstable emulsion
42	40	30	30	2	unstable emulsion
43	40	40	20	2	unstable emulsion
44	40	50	10	2	unstable liquid crystal
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	2	unstable emulsion
49	50	30	20	1	emulsion
50	50	40	10	3	unstable liquid crystal
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	2	unstable emulsion
55	60	30	10	2	unstable emulsion
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	2	unstable emulsion
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	1	isotropic
66	100	0	0	1	isotropic

236

Table B60   Pseudoternary phase system of IPM: Brij97: propylene glycol = 2:1:

Water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	isotropic
3	0	20	80	1	isotropic
4	0	30	70	1	isotropic
5	0	40	60	1	isotropic
6	0	50	50	2	unstable isotropic
7	0	60	40	2	unstable isotropic
8	0	70	30	1	isotropic
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	1	liquid crystal
17	10	50	40	1	isotropic
18	10	60	30	1	isotropic
19	10	70	20	1	isotropic
20	10	80	10	1	isotropic
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	1	emulsion
26	20	40	40	2	unstable emulsion
27	20	50	30	2	unstable isotropic
28	20	60	20	2	liquid crystal
29	20	70	10	1	liquid crystal
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	1	emulsion
35	30	40	30	2	unstable liquid crystal
36	30	50	20	2	unstable liquid crystal
37	30	60	10	1	liquid crystal
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	1	emulsion
42	40	30	30	2	unstable emulsion
43	40	40	20	2	unstable liquid crystal
44	40	50	10	1	liquid crystal
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	1	emulsion
48	50	20	30	1	emulsion
49	50	30	20	2	unstable isotropic
50	50	40	10	1	isotropic
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	1	emulsion
54	60	20	20	2	unstable emulsion
55	60	30	10	2	unstable isotropic
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	1	emulsion
59	70	20	10	2	unstable emulsion
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	1	emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	2	isotropic
66	100	0	0	1	isotropic

Table B61   Pseudoternary phase system of IPM: Brij97: propylene glycol = 4:1:

Water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	isotropic
3	0	20	80	1	isotropic
4	0	30	70	1	isotropic
5	0	40	60	2	unstable isotropic
6	0	50	50	1	liquid crystal
7	0	60	40	1	liquid crystal
8	0	70	30	1	liquid crystal
9	0	80	20	1	isotropic
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	1	liquid crystal
17	10	50	40	1	liquid crystal
18	10	60	30	1	liquid crystal
19	10	70	20	1	liquid crystal
20	10	80	10	1	liquid crystal
21	10	90	0	1	isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	1	emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	2	unstable emulsion
26	20	40	40	2	unstable liquid crystal
27	20	50	30	2	unstable liquid crystal
28	20	60	20	2	unstable isotropic
29	20	70	10	1	liquid crystal
30	20	80	0	1	isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	1	emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	1	emulsion
34	30	30	40	1	emulsion
35	30	40	30	2	unstable liquid crystal
36	30	50	20	3	unstable liquid crystal
37	30	60	10	1	liquid crystal
38	30	70	0	1	isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	1	emulsion
42	40	30	30	2	unstable emulsion
43	40	40	20	3	unstable liquid crystal
44	40	50	10	1	liquid crystal
45	40	60	0	1	isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	1	emulsion
48	50	20	30	1	emulsion
49	50	30	20	2	unstable isotropic
50	50	40	10	1	liquid crystal
51	50	50	0	1	isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	2	unstable emulsion
55	60	30	10	2	unstable liquid crystal
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	1	emulsion
59	70	20	10	2	unstable emulsion
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	1	emulsion
63	80	20	0	1	isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	2	isotropic
66	100	0	0	1	isotropic

Table B62   Pseudoternary phase system of IPM: Arlatone T: propylene glycol =

1:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	1	emulsion
4	0	30	70	2	unstable liquid crystal
5	0	40	60	3	unstable liquid crystal
6	0	50	50	3	unstable liquid crystal
7	0	60	40	2	unstable isotropic
8	0	70	30	2	unstable isotropic
9	0	80	20	2	unstable isotropic
10	0	90	10	2	unstable liquid crystal
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	2	unstable emulsion
17	10	50	40	2	unstable emulsion
18	10	60	30	3	unstable emulsion
19	10	70	20	2	unstable emulsion
20	10	80	10	2	unstable liquid crystal
21	10	90	0	2	unstable liquid crystal
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	3	unstable emulsion
26	20	40	40	3	unstable emulsion
27	20	50	30	3	unstable emulsion
28	20	60	20	3	unstable isotropic
29	20	70	10	2	unstable liquid crystal
30	20	80	0	2	unstable liquid crystal
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	3	unstable emulsion
35	30	40	30	3	unstable emulsion
36	30	50	20	3	unstable liquid crystal
37	30	60	10	2	unstable liquid crystal
38	30	70	0	2	unstable liquid crystal
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	3	unstable emulsion
42	40	30	30	3	unstable emulsion
43	40	40	20	3	unstable emulsion
44	40	50	10	3	unstable liquid crystal
45	40	60	0	2	unstable isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	2	unstable emulsion
49	50	30	20	2	unstable emulsion
50	50	40	10	2	unstable isotropic
51	50	50	0	2	unstable isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	2	unstable emulsion
55	60	30	10	2	unstable isotropic
56	60	40	0	2	unstable isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	3	unstable isotropic
60	70	30	0	2	unstable isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	2	unstable isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	2	unstable isotropic
66	100	0	0	1	isotropic

Table B63   Pseudoternary phase system of IPM: Arlatone T: propylene glycol =

2:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	1	emulsion
4	0	30	70	2	unstable isotropic
5	0	40	60	2	unstable isotropic
6	0	50	50	2	unstable isotropic
7	0	60	40	2	unstable isotropic
8	0	70	30	2	unstable isotropic
9	0	80	20	2	unstable isotropic
10	0	90	10	2	unstable isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	1	emulsion
14	10	20	70	1	emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	2	unstable emulsion
17	10	50	40	2	unstable emulsion
18	10	60	30	2	unstable isotropic
19	10	70	20	2	unstable isotropic
20	10	80	10	2	unstable isotropic
21	10	90	0	2	unstable liquid crystal
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	2	unstable emulsion
26	20	40	40	2	unstable emulsion
27	20	50	30	3	unstable emulsion
28	20	60	20	2	unstable isotropic
29	20	70	10	3	unstable isotropic
30	20	80	0	2	unstable liquid crystal
31	30	0	70	2	unstable isotropic
32	30	10	60	1	emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	2	unstable emulsion
35	30	40	30	2	unstable emulsion
36	30	50	20	3	unstable liquid crystal
37	30	60	10	2	unstable liquid crystal
38	30	70	0	2	unstable liquid crystal
39	40	0	60	2	unstable isotropic
40	40	10	50	1	emulsion
41	40	20	40	2	unstable emulsion
42	40	30	30	2	unstable emulsion
43	40	40	20	2	unstable emulsion
44	40	50	10	2	unstable isotropic
45	40	60	0	2	unstable liquid crystal
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	2	unstable emulsion
49	50	30	20	3	unstable emulsion
50	50	40	10	2	unstable liquid crystal
51	50	50	0	2	unstable liquid crystal
52	60	0	40	2	unstable isotropic
53	60	10	30	1	emulsion
54	60	20	20	1	emulsion
55	60	30	10	2	unstable emulsion
56	60	40	0	2	unstable liquid crystal
57	70	0	30	2	unstable isotropic
58	70	10	20	1	emulsion
59	70	20	10	1	emulsion
60	70	30	0	2	unstable isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	2	unstable isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	2	unstable isotropic
66	100	0	0	1	isotropic

Table B64   Pseudoternary phase system of IPM: Arlatone T: propylene glycol =

4:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	1	emulsion
3	0	20	80	1	emulsion
4	0	30	70	2	unstable emulsion
5	0	40	60	2	unstable isotropic
6	0	50	50	2	unstable isotropic
7	0	60	40	2	unstable isotropic
8	0	70	30	2	unstable isotropic
9	0	80	20	2	unstable isotropic
10	0	90	10	2	unstable liquid crystal
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	2	unstable emulsion
17	10	50	40	2	unstable emulsion
18	10	60	30	2	unstable liquid crystal
19	10	70	20	2	unstable liquid crystal
20	10	80	10	1	isotropic
21	10	90	0	2	unstable liquid crystal
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	3	unstable emulsion
25	20	30	50	3	unstable emulsion
26	20	40	40	3	unstable emulsion
27	20	50	30	2	unstable emulsion
28	20	60	20	2	unstable liquid crystal
29	20	70	10	1	isotropic
30	20	80	0	2	unstable liquid crystal
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	3	unstable emulsion
35	30	40	30	3	unstable emulsion
36	30	50	20	3	unstable emulsion
37	30	60	10	2	unstable liquid crystal
38	30	70	0	2	unstable isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	3	unstable emulsion
42	40	30	30	3	unstable emulsion
43	40	40	20	3	unstable liquid crystal
44	40	50	10	2	unstable liquid crystal
45	40	60	0	2	unstable isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	2	unstable emulsion
49	50	30	20	2	unstable emulsion
50	50	40	10	2	unstable isotropic
51	50	50	0	2	unstable isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	2	unstable emulsion
55	60	30	10	1	emulsion
56	60	40	0	2	unstable isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	1	emulsion
60	70	30	0	2	unstable isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	2	unstable isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	2	unstable isotropic
66	100	0	0	1	isotropic

Table B65   Pseudoternary phase system of IPM: Tween80/Span80 (1:1): propylene

glycol = 1:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	2	unstable emulsion
3	0	20	80	2	unstable emulsion
4	0	30	70	1	emulsion
5	0	40	60	1	emulsion
6	0	50	50	1	emulsion
7	0	60	40	1	emulsion
8	0	70	30	1	emulsion
9	0	80	20	2	unstable emulsion
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	2	unstable emulsion
17	10	50	40	1	emulsion
18	10	60	30	2	emulsion
19	10	70	20	2	unstable emulsion
20	10	80	10	1	isotropic
21	10	90	0	2	unstable isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	2	unstable emulsion
26	20	40	40	2	unstable emulsion
27	20	50	30	2	unstable emulsion
28	20	60	20	2	unstable emulsion
29	20	70	10	1	isotropic
30	20	80	0	2	unstable isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	1	emulsion
34	30	30	40	2	unstable emulsion
35	30	40	30	4	unstable liquid crystal
36	30	50	20	2	unstable isotropic
37	30	60	10	2	unstable isotropic
38	30	70	0	2	unstable isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	3	unstable emulsion
41	40	20	40	3	unstable emulsion
42	40	30	30	2	unstable emulsion
43	40	40	20	3	unstable liquid crystal
44	40	50	10	2	unstable isotropic
45	40	60	0	2	unstable isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	3	unstable emulsion
48	50	20	30	3	unstable emulsion
49	50	30	20	2	unstable isotropic
50	50	40	10	2	unstable isotropic
51	50	50	0	2	unstable isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	3	unstable emulsion
54	60	20	20	3	unstable emulsion
55	60	30	10	3	unstable liquid crystal
56	60	40	0	1	isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	3	unstable emulsion
59	70	20	10	3	unstable isotropic
60	70	30	0	1	isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable isotropic
63	80	20	0	2	unstable isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	2	unstable isotropic
66	100	0	0	1	isotropic

Table B66   Pseudoternary phase system of IPM:Tween80/Span80(1:1): propylene

glycol = 2:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	2	unstable emulsion
3	0	20	80	2	unstable emulsion
4	0	30	70	2	unstable emulsion
5	0	40	60	2	unstable emulsion
6	0	50	50	2	unstable emulsion
7	0	60	40	1	emulsion
8	0	70	30	2	unstable emulsion
9	0	80	20	2	unstable emulsion
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	2	unstable emulsion
17	10	50	40	2	unstable emulsion
18	10	60	30	1	emulsion
19	10	70	20	1	emulsion
20	10	80	10	1	isotropic
21	10	90	0	2	unstable isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	2	unstable emulsion
26	20	40	40	2	unstable emulsion
27	20	50	30	2	unstable emulsion
28	20	60	20	3	unstable isotropic
29	20	70	10	1	isotropic
30	20	80	0	2	unstable isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	2	unstable emulsion
35	30	40	30	2	unstable emulsion
36	30	50	20	2	unstable liquid crystal
37	30	60	10	1	isotropic
38	30	70	0	2	unstable isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	3	unstable emulsion
42	40	30	30	3	unstable isotropic
43	40	40	20	2	unstable isotropic
44	40	50	10	2	unstable isotropic
45	40	60	0	2	unstable isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	3	unstable emulsion
49	50	30	20	2	unstable isotropic
50	50	40	10	2	unstable isotropic
51	50	50	0	2	unstable isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	3	unstable emulsion
54	60	20	20	2	unstable isotropic
55	60	30	10	2	unstable liquid crystal
56	60	40	0	2	unstable isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	3	unstable liquid crystal
59	70	20	10	3	unstable liquid crystal
60	70	30	0	2	unstable isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable liquid crystal
63	80	20	0	2	unstable isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	2	unstable isotropic
66	100	0	0	1	isotropic

Table B67   Pseudoternary phase system of IPM: Tween80/Span80(1:1): propylene

glycol = 4:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	2	unstable emulsion
3	0	20	80	2	unstable emulsion
4	0	30	70	2	unstable emulsion
5	0	40	60	2	unstable emulsion
6	0	50	50	2	unstable emulsion
7	0	60	40	2	unstable emulsion
8	0	70	30	2	unstable emulsion
9	0	80	20	2	unstable emulsion
10	0	90	10	1	liquid crystal
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	2	unstable emulsion
17	10	50	40	1	emulsion
18	10	60	30	1	emulsion
19	10	70	20	2	unstable liquid crystal
20	10	80	10	1	isotropic
21	10	90	0	2	unstable isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	2	unstable emulsion
26	20	40	40	2	unstable emulsion
27	20	50	30	2	unstable isotropic
28	20	60	20	2	unstable isotropic
29	20	70	10	1	isotropic
30	20	80	0	2	unstable isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	2	unstable emulsion
35	30	40	30	2	unstable isotropic
36	30	50	20	2	unstable isotropic
37	30	60	10	1	isotropic
38	30	70	0	2	unstable isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	3	unstable emulsion
41	40	20	40	3	unstable emulsion
42	40	30	30	2	unstable emulsion
43	40	40	20	3	unstable liquid crystal
44	40	50	10	2	unstable liquid crystal
45	40	60	0	2	unstable isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	3	unstable emulsion
48	50	20	30	3	unstable emulsion
49	50	30	20	2	unstable isotropic
50	50	40	10	2	unstable liquid crystal
51	50	50	0	2	unstable isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	3	unstable emulsion
54	60	20	20	3	unstable liquid crystal
55	60	30	10	2	unstable liquid crystal
56	60	40	0	2	unstable isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	3	unstable emulsion
59	70	20	10	2	unstable isotropic
60	70	30	0	2	unstable isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable isotropic
63	80	20	0	2	unstable isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	2	unstable isotropic
66	100	0	0	1	isotropic

Table B68   Pseudoternary phase system of IPM: Tween80/Span80(2:1): propylene

glycol = 1:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	2	unstable emulsion
3	0	20	80	2	unstable emulsion
4	0	30	70	2	unstable emulsion
5	0	40	60	1	emulsion
6	0	50	50	1	unstable emulsion
7	0	60	40	2	unstable liquid crystal
8	0	70	30	2	unstable liquid crystal
9	0	80	20	2	unstable liquid crystal
10	0	90	10	1	isotropic
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	2	unstable emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	2	unstable emulsion
17	10	50	40	2	unstable liquid crystal
18	10	60	30	2	unstable liquid crystal
19	10	70	20	2	unstable liquid crystal
20	10	80	10	1	isotropic
21	10	90	0	2	unstable isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	2	unstable emulsion
26	20	40	40	1	emulsion
27	20	50	30	2	unstable liquid crystal
28	20	60	20	2	unstable liquid crystal
29	20	70	10	1	isotropic
30	20	80	0	2	unstable isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	1	emulsion
35	30	40	30	3	unstable emulsion
36	30	50	20	3	unstable isotropic
37	30	60	10	2	unstable isotropic
38	30	70	0	2	unstable isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	2	unstable emulsion
42	40	30	30	2	unstable emulsion
43	40	40	20	2	unstable liquid crystal
44	40	50	10	2	unstable isotropic
45	40	60	0	2	unstable isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	3	unstable liquid crystal
49	50	30	20	2	unstable liquid crystal
50	50	40	10	2	unstable isotropic
51	50	50	0	2	unstable isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	3	unstable liquid crystal
55	60	30	10	2	unstable liquid crystal
56	60	40	0	2	unstable isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	2	unstable liquid crystal
60	70	30	0	2	unstable isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	2	unstable isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	2	unstable isotropic
66	100	0	0	1	isotropic

Table B69   Pseudoternary phase system of IPM: Tween80/Span80(2:1): propylene

glycol = 2:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	2	unstable emulsion
3	0	20	80	2	unstable emulsion
4	0	30	70	2	unstable emulsion
5	0	40	60	1	emulsion
6	0	50	50	2	unstable emulsion
7	0	60	40	2	unstable emulsion
8	0	70	30	2	unstable liquid crystal
9	0	80	20	2	unstable liquid crystal
10	0	90	10	1	liquid crystal
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	1	emulsion
14	10	20	70	1	emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	2	unstable emulsion
17	10	50	40	2	unstable emulsion
18	10	60	30	2	unstable isotropic
19	10	70	20	2	unstable liquid crystal
20	10	80	10	1	isotropic
21	10	90	0	2	unstable isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	2	unstable emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	2	unstable emulsion
26	20	40	40	2	unstable emulsion
27	20	50	30	1	emulsion
28	20	60	20	2	unstable liquid crystal
29	20	70	10	2	unstable liquid crystal
30	20	80	0	2	unstable isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	2	unstable emulsion
35	30	40	30	2	unstable emulsion
36	30	50	20	2	unstable liquid crystal
37	30	60	10	2	unstable isotropic
38	30	70	0	2	unstable isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	2	unstable emulsion
41	40	20	40	2	unstable emulsion
42	40	30	30	2	unstable emulsion
43	40	40	20	2	unstable liquid crystal
44	40	50	10	2	unstable isotropic
45	40	60	0	2	unstable isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	2	unstable emulsion
49	50	30	20	2	unstable liquid crystal
50	50	40	10	2	unstable isotropic
51	50	50	0	2	unstable isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	2	unstable emulsion
55	60	30	10	2	unstable liquid crystal
56	60	40	0	2	unstable isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable emulsion
59	70	20	10	2	unstable liquid crystal
60	70	30	0	2	unstable isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	2	unstable emulsion
63	80	20	0	2	unstable isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	2	unstable isotropic
66	100	0	0	1	isotropic

Table B70   Pseudoternary phase system of IPM: Tween80/Span80 (2:1): propylene

glycol = 4:1: water

No.	Oil	Surfactant	Water	Phase	Description
1	0	0	100	1	isotropic
2	0	10	90	2	unstable emulsion
3	0	20	80	2	unstable emulsion
4	0	30	70	2	unstable emulsion
5	0	40	60	2	unstable emulsion
6	0	50	50	2	unstable emulsion
7	0	60	40	2	unstable emulsion
8	0	70	30	2	unstable emulsion
9	0	80	20	2	unstable emulsion
10	0	90	10	1	liquid crystal
11	0	100	0	1	isotropic
12	10	0	90	2	unstable isotropic
13	10	10	80	1	emulsion
14	10	20	70	2	unstable emulsion
15	10	30	60	2	unstable emulsion
16	10	40	50	2	unstable emulsion
17	10	50	40	1	emulsion
18	10	60	30	2	unstable isotropic
19	10	70	20	2	unstable isotropic
20	10	80	10	2	unstable liquid crystal
21	10	90	0	2	unstable isotropic
22	20	0	80	2	unstable isotropic
23	20	10	70	1	emulsion
24	20	20	60	2	unstable emulsion
25	20	30	50	2	unstable emulsion
26	20	40	40	1	emulsion
27	20	50	30	2	unstable liquid crystal
28	20	60	20	2	unstable liquid crystal
29	20	70	10	2	unstable liquid crystal
30	20	80	0	2	unstable isotropic
31	30	0	70	2	unstable isotropic
32	30	10	60	2	unstable emulsion

257

No.	Oil	Surfactant	Water	Phase	Description
33	30	20	50	2	unstable emulsion
34	30	30	40	2	unstable emulsion
35	30	40	30	2	unstable emulsion
36	30	50	20	2	unstable emulsion
37	30	60	10	2	unstable liquid crystal
38	30	70	0	2	unstable isotropic
39	40	0	60	2	unstable isotropic
40	40	10	50	1	emulsion
41	40	20	40	2	unstable emulsion
42	40	30	30	2	unstable emulsion
43	40	40	20	2	unstable isotropic
44	40	50	10	2	unstable liquid crystal
45	40	60	0	2	unstable isotropic
46	50	0	50	2	unstable isotropic
47	50	10	40	2	unstable emulsion
48	50	20	30	2	unstable emulsion
49	50	30	20	2	unstable isotropic
50	50	40	10	2	unstable liquid crystal
51	50	50	0	2	unstable isotropic
52	60	0	40	2	unstable isotropic
53	60	10	30	2	unstable emulsion
54	60	20	20	3	unstable isotropic
55	60	30	10	2	unstable isotropic
56	60	40	0	2	unstable isotropic
57	70	0	30	2	unstable isotropic
58	70	10	20	2	unstable isotropic
59	70	20	10	3	unstable isotropic
60	70	30	0	2	unstable isotropic
61	80	0	20	2	unstable isotropic
62	80	10	10	3	unstable isotropic
63	80	20	0	2	unstable isotropic
64	90	0	10	2	unstable isotropic
65	90	10	0	2	unstable isotropic
66	100	0	0	1	isotropic

APPENDIXC

TEM images of microemulsions
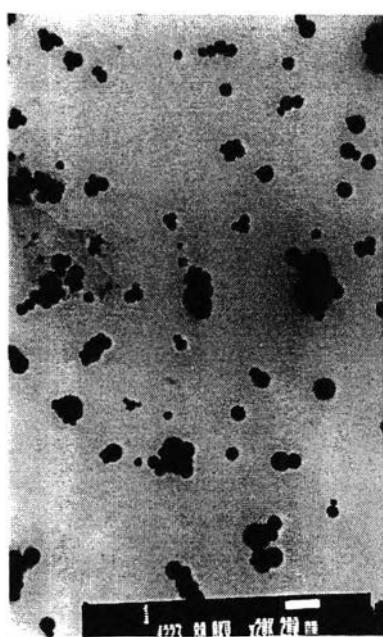
Figure C1 IPM: Tween80/Span80=1:1:
water = 30:60:10
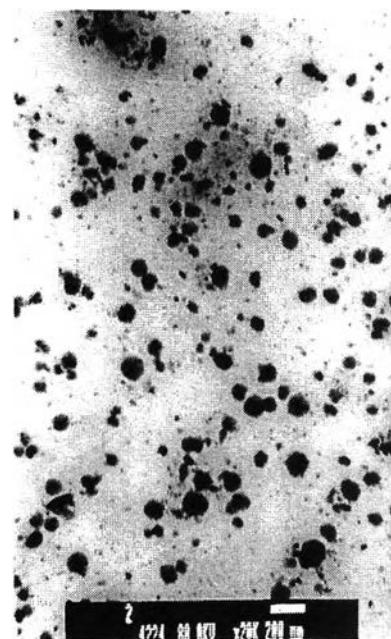
Figure C2 caprylic/capric triglyceride:
Tween80/Span80 (1:1): water
= 30:60:10
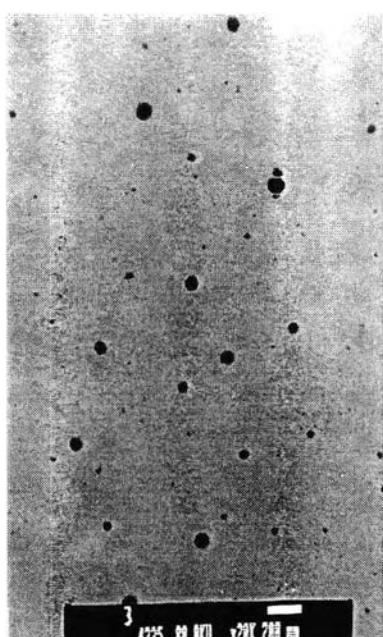
Figure C3 IPM: Tween80/Span80
(2:1): water = 30:60:10
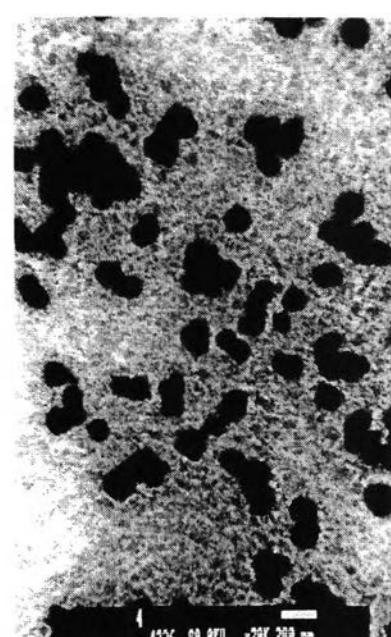
Figure C4 caprylic/capric triglyceride:
Tween80/Span80 (2:1): water
= 30:60:10

260
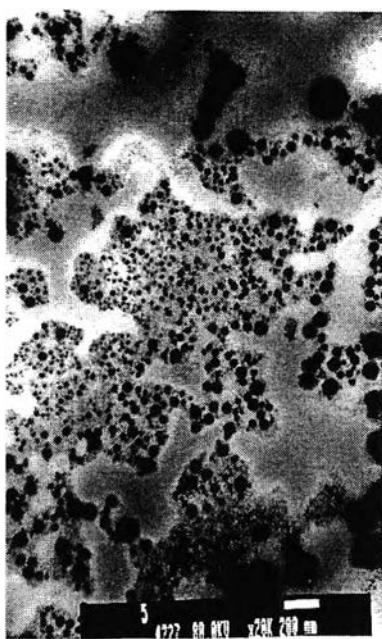
Figure C5 IPM: Brij30: water = 30:60:10
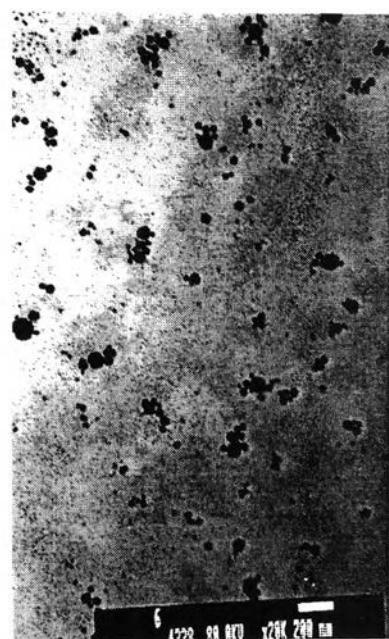
Figure C6 caprylic/capric triglyceride: Brij30: water = 30:60:10
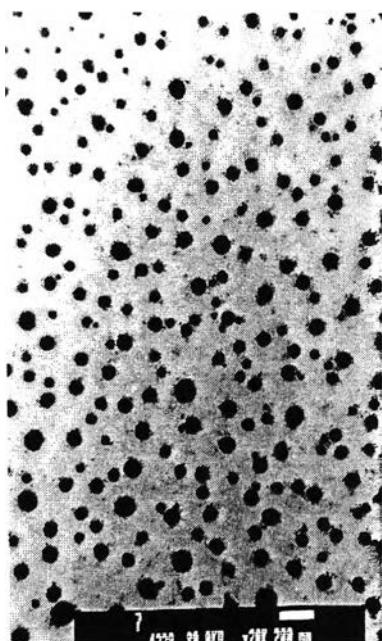
Figure C7 IPM: Brij97: water = 30:60:10

Figure C8 caprylic/capric triglyceride: Brij97: water = 30:60:10
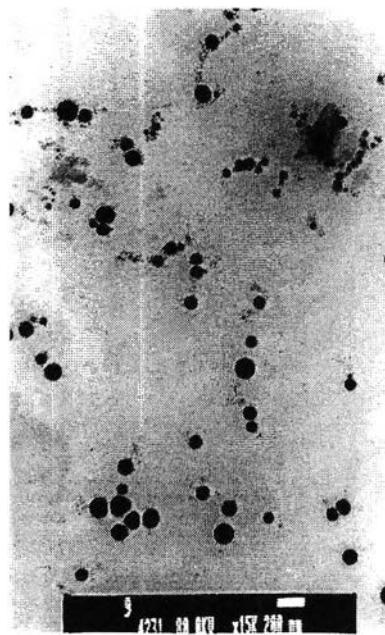
Figure C9 IPM: Arlatone T:
water = 30:60:10
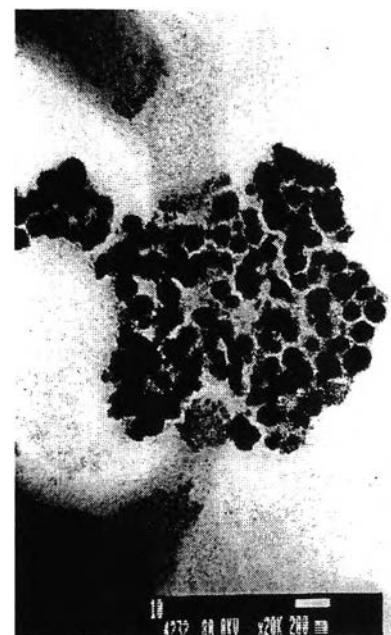
Figure C10 caprylic/capric triglyceride:
Arlatone T: water = 30:60:10
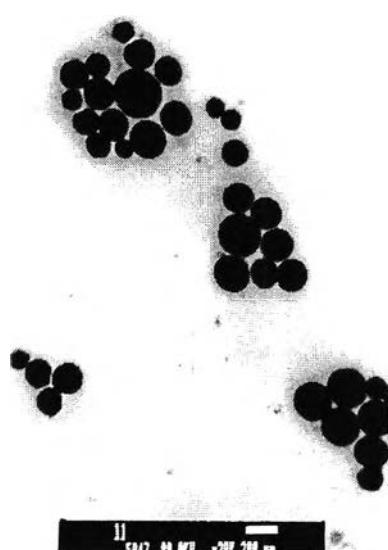
Figure C11 IPM: Brij97: propan-2-ol:
water = 30: 30: 30: 10
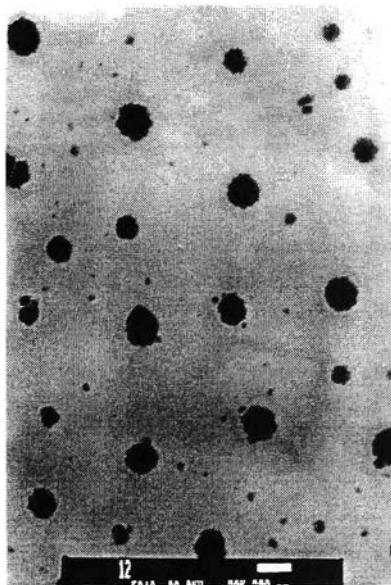
Figure C12 IPM: Brij97: propylene
glycol: water = 30: 30: 30: 10
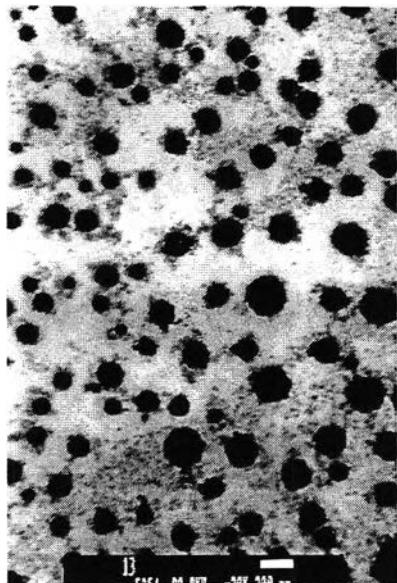
Figure C13 IPM: Brij97: propan-2-ol:
water = 30: 40: 20: 10
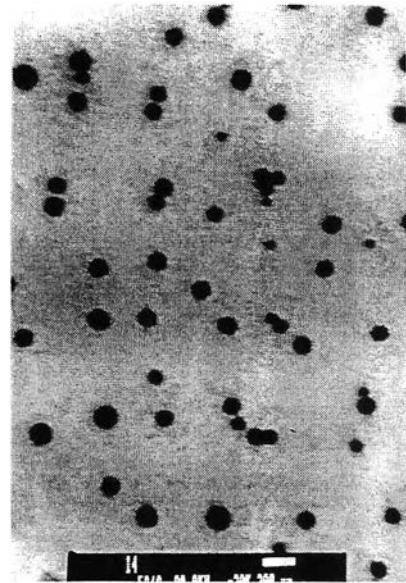
Figure C14 IPM: Brij97: propan-2-ol:
water = 30: 48: 12: 10
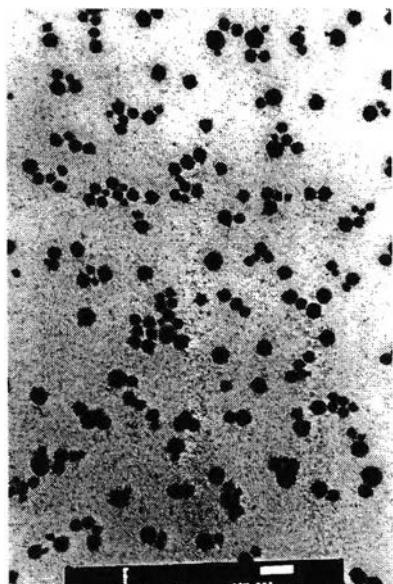
Figure C15 IPM: Tween 80: Span 80:
Propan-2-ol: water =
30: 20: 10: 30: 10
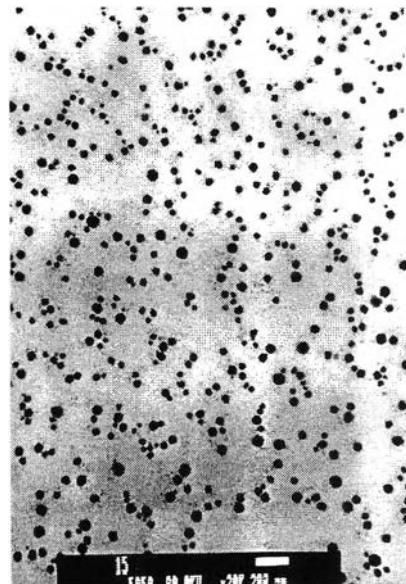
Figure C16 IPM: Tween 80: Span 80:
Propan-2-ol: water =
30: 20: 10: 30: 10 with
Centella triterpene extract
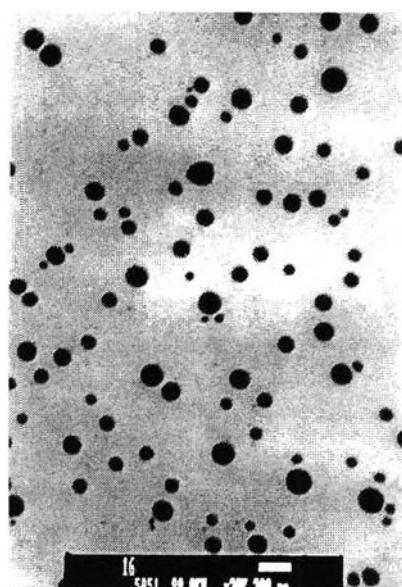
Figure C17 IPM: Tween 80: Span 80: propan-2-ol: water = 30: 20:10: 30: 10 with centella asiatica extract following method A1
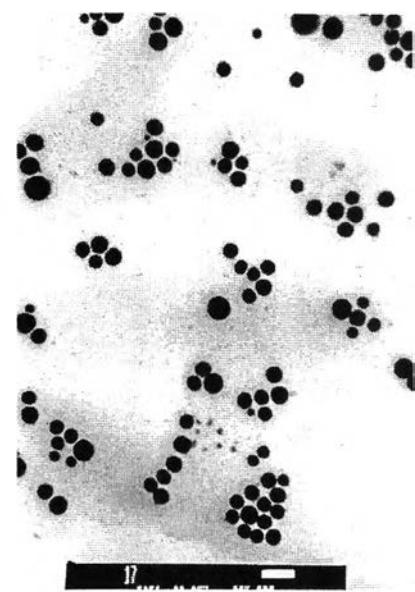
Figure C18 IPM: Tween 80: Span 80: propan-2-ol: water = 30: 20:10: 30: 10 with centella asiatica extract following method A2

APPENDIX D

Flux and permeability from permeation study

Table D1   Cumulative amount permeation from microemulsion formula 1

Time (hr)	Cumulative amount permeated (mg/ cm^2)			Mean	SD
	n_1	n_2	n_3		
asiaticoside					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0339	0.0382	0.0000	0.0240	0.0209
12	0.0402	0.0444	0.0553	0.0467	0.0078
24	0.0687	0.0808	0.0741	0.0745	0.0060
36	0.0960	0.1065	0.0964	0.0996	0.0060
48	0.1254	0.1266	0.1167	0.1229	0.0054
60	0.1246	0.1473	0.1350	0.1356	0.0114
72	0.1717	0.1664	0.1583	0.1655	0.0068
Madecassic acid					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0167	0.0292	0.0283	0.0247	0.0070
12	0.0344	0.0493	0.0485	0.0441	0.0084
24	0.0600	0.0790	0.0836	0.0742	0.0125
36	0.0901	0.1110	0.1063	0.1025	0.0110
48	0.1173	0.1582	0.1338	0.1365	0.0206
60	0.1390	0.1655	0.1602	0.1549	0.0140
72	0.1912	0.2092	0.2291	0.2098	0.0189
Asiatic acid					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0161	0.0294	0.0334	0.0263	0.0090
12	0.0205	0.0422	0.0391	0.0339	0.0117
24	0.0489	0.0657	0.0733	0.0626	0.0125
36	0.0668	0.0982	0.0969	0.0873	0.0177
48	0.0882	0.1237	0.1179	0.1099	0.0190
60	0.1156	0.1481	0.1436	0.1358	0.0176
72	0.1543	0.1851	0.1881	0.1758	0.0187

Table D2 Cumulative amount permeation from microemulsion formula 2

Time (hr)	Cumulative amount permeated (mg/ cm^2)			Mean	SD
	n_1	n_2	n_3		
asiaticoside					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0133	0.0000	0.0000	0.0044	0.0077
6	0.0164	0.0000	0.0138	0.0101	0.0088
12	0.0227	0.0393	0.0166	0.0262	0.0118
24	0.0352	0.0721	0.0544	0.0539	0.0185
36	0.0673	0.1268	0.0673	0.0871	0.0344
48	0.0928	0.1470	0.0931	0.1110	0.0312
60	0.1250	0.1869	0.1264	0.1461	0.0353
72	0.1440	0.1956	0.1259	0.1552	0.0362
Madecassic acid					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0275	0.0000	0.0102	0.0126	0.0139
12	0.0374	0.0145	0.0244	0.0254	0.0115
24	0.0395	0.0355	0.0426	0.0392	0.0035
36	0.0581	0.0752	0.0638	0.0657	0.0087
48	0.0808	0.0880	0.0904	0.0864	0.0050
60	0.1102	0.1238	0.1225	0.1188	0.0075
72	0.1287	0.1469	0.1365	0.1374	0.0091
Asiatic acid					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0252	0.0084	0.0145
12	0.0140	0.0202	0.0387	0.0243	0.0129
24	0.0392	0.0364	0.0526	0.0427	0.0087
36	0.0670	0.0658	0.0727	0.0685	0.0037
48	0.0852	0.0749	0.0933	0.0844	0.0092
60	0.1051	0.1037	0.1161	0.1083	0.0068
72	0.1227	0.1216	0.1337	0.1260	0.0067

Table D3 Cumulative amount permeation from microemulsion formula 3

Time (hr)	Cumulative amount permeated (mg/ cm^2)			Mean	SD
	n_1	n_2	n_3		
asiaticoside					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0273	0.0091	0.0157
12	0.0000	0.0345	0.0396	0.0247	0.0215
24	0.0601	0.0598	0.0642	0.0614	0.0024
36	0.0716	0.0767	0.0786	0.0756	0.0036
48	0.0976	0.1087	0.1053	0.1039	0.0057
60	0.1110	0.1163	0.1200	0.1158	0.0045
72	0.1930	0.2078	0.1911	0.1973	0.0091
Madecassic acid					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0256	0.0199	0.0385	0.0280	0.0095
12	0.0528	0.0573	0.0693	0.0598	0.0085
24	0.1055	0.1188	0.1365	0.1202	0.0156
36	0.1399	0.1343	0.1746	0.1496	0.0218
48	0.1843	0.1914	0.2300	0.2019	0.0246
60	0.2261	0.2131	0.2643	0.2345	0.0266
72	0.2654	0.2698	0.2888	0.2746	0.0124
Asiatic acid					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0184	0.0202	0.0401	0.0262	0.0120
12	0.0291	0.0453	0.0631	0.0458	0.0170
24	0.0782	0.1001	0.1147	0.0977	0.0184
36	0.1116	0.0934	0.1453	0.1168	0.0263
48	0.1448	0.1528	0.1895	0.1624	0.0239
60	0.1745	0.1865	0.2194	0.1935	0.0232
72	0.2096	0.2203	0.2445	0.2248	0.0179

Table D4   Cumulative amount permeation from microemulsion formula 4

Time (hr)	Cumulative amount permeated (mg/ cm^2)			Mean	SD
	n_1	n_2	n_3		
asiaticoside					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000	0.0000	0.0000
24	0.0000	0.0000	0.0000	0.0000	0.0000
36	0.0000	0.0000	0.0000	0.0000	0.0000
48	0.0000	0.0000	0.0000	0.0000	0.0000
60	0.0000	0.0000	0.0000	0.0000	0.0000
72	0.0000	0.0000	0.0000	0.0000	0.0000
Madecassic acid					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0098	0.0000	0.0033	0.0056
24	0.0233	0.0287	0.0324	0.0281	0.0046
36	0.0407	0.0409	0.0533	0.0450	0.0072
48	0.0606	0.0495	0.0613	0.0571	0.0066
60	0.0720	0.0579	0.0723	0.0674	0.0083
72	0.0860	0.0672	0.0842	0.0791	0.0104
Asiatic acid					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000	0.0000	0.0000
24	0.0000	0.0165	0.0000	0.0055	0.0095
36	0.0334	0.0190	0.0353	0.0292	0.0089
48	0.0537	0.0287	0.0604	0.0476	0.0167
60	0.0695	0.0514	0.0799	0.0669	0.0144
72	0.0802	0.0571	0.0950	0.0774	0.0191

Table D5   Cumulative amount permeation from microemulsion formula 5

Time (hr)	Cumulative amount permeated (mg/ cm^2)			Mean	SD
	n_1	n_2	n_3		
asiaticoside					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0304	0.0391	0.0000	0.0232	0.0205
24	0.0483	0.0682	0.0311	0.0492	0.0185
36	0.0855	0.0993	0.0601	0.0816	0.0198
48	0.1214	0.1371	0.0879	0.1155	0.0251
60	0.1548	0.1623	0.1206	0.1459	0.0223
72	0.1696	0.1848	0.1546	0.1697	0.0151
Madecassic acid					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000	0.0000	0.0000
24	0.0439	0.0408	0.0500	0.0449	0.0047
36	0.0658	0.0646	0.0900	0.0735	0.0143
48	0.0873	0.0866	0.1220	0.0986	0.0203
60	0.1076	0.1098	0.1607	0.1260	0.0300
72	0.1993	0.2056	0.1979	0.2009	0.0041
Asiatic acid					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0410	0.0350	0.0210	0.0323	0.0103
24	0.0535	0.0490	0.0334	0.0453	0.0106
36	0.0726	0.0676	0.0605	0.0669	0.0061
48	0.0915	0.0863	0.0792	0.0857	0.0061
60	0.1101	0.1063	0.1059	0.1075	0.0023
72	0.1576	0.2182	0.1306	0.1688	0.0448

Table D6 Cumulative amount permeation from microemulsion formula 6

Time (hr)	Cumulative amount permeated (mg/ cm^2)			Mean	SD
	n_1	n_2	n_3		
asiaticoside					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0245	0.0137	0.0127	0.0123
24	0.0334	0.0365	0.0268	0.0323	0.0049
36	0.0495	0.0531	0.0423	0.0483	0.0055
48	0.0655	0.0699	0.0998	0.0784	0.0187
60	0.0978	0.0943	0.1292	0.1071	0.0192
72	0.1195	0.1128	0.1465	0.1262	0.0178
Madecassic acid					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0046	0.0000	0.0000	0.0015	0.0026
12	0.0406	0.0465	0.0364	0.0412	0.0050
24	0.0796	0.0908	0.0767	0.0824	0.0074
36	0.1283	0.1503	0.1348	0.1378	0.0113
48	0.1804	0.1951	0.1789	0.1848	0.0089
60	0.2239	0.2257	0.2201	0.2233	0.0028
72	0.2749	0.2951	0.2679	0.2793	0.0141
Asiatic acid					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0318	0.0464	0.0243	0.0342	0.0113
24	0.0579	0.0764	0.0530	0.0624	0.0123
36	0.0882	0.1156	0.0915	0.0984	0.0150
48	0.1233	0.1494	0.1234	0.1320	0.0150
60	0.1517	0.1719	0.1563	0.1600	0.0106
72	0.1858	0.2109	0.1880	0.1949	0.0139

Table D7   Cumulative amount permeation from microemulsion formula 7

Time (hr)	Cumulative amount permeated (mg/ cm^2)			Mean	SD
	n_1	n_2	n_3		
asiaticoside					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0292	0.0281	0.0191	0.0165
24	0.0000	0.0371	0.0362	0.0244	0.0212
36	0.0300	0.0458	0.0448	0.0402	0.0088
48	0.0380	0.0528	0.0549	0.0486	0.0092
60	0.0583	0.0730	0.0739	0.0684	0.0088
72	0.0726	0.0840	0.0902	0.0823	0.0089
Madecassic acid					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0273	0.0210	0.0095	0.0193	0.0090
12	0.0559	0.0368	0.0238	0.0389	0.0161
24	0.1033	0.0634	0.0476	0.0714	0.0287
36	0.1500	0.0974	0.0771	0.1082	0.0376
48	0.1933	0.1222	0.1160	0.1438	0.0429
60	0.2489	0.1555	0.1410	0.1818	0.0586
72	0.2825	0.1825	0.1682	0.2111	0.0623
Asiatic acid					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0267	0.0000	0.0089	0.0154
12	0.0362	0.0398	0.0158	0.0306	0.0129
24	0.0666	0.0571	0.0334	0.0523	0.0171
36	0.0931	0.0838	0.0518	0.0762	0.0217
48	0.1256	0.1001	0.0792	0.1016	0.0233
60	0.1563	0.1259	0.0997	0.1273	0.0283
72	0.1793	0.1454	0.1159	0.1469	0.0318

Table D8   Cumulative amount permeation from microemulsion formula 8

Time (hr)	Cumulative amount permeated (mg/ cm^2)			Mean	SD
	n_1	n_2	n_3		
asiaticoside					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000	0.0000	0.0000
24	0.0000	0.0000	0.0000	0.0000	0.0000
36	0.0000	0.0000	0.0000	0.0000	0.0000
48	0.0000	0.0000	0.0000	0.0000	0.0000
60	0.0000	0.0000	0.0000	0.0000	0.0000
72	0.0000	0.0000	0.0000	0.0000	0.0000
Madecassic acid					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0071	0.0168	0.0078	0.0106	0.0054
24	0.0225	0.0366	0.0234	0.0275	0.0079
36	0.0431	0.0595	0.0417	0.0481	0.0099
48	0.0655	0.0802	0.0587	0.0682	0.0110
60	0.0947	0.1100	0.0839	0.0962	0.0131
72	0.1110	0.1304	0.0995	0.1136	0.0156
Asiatic acid					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000	0.0000	0.0000
24	0.0241	0.0389	0.0169	0.0266	0.0112
36	0.0421	0.0577	0.0324	0.0441	0.0128
48	0.0631	0.0763	0.0457	0.0617	0.0154
60	0.0876	0.1010	0.0639	0.0842	0.0188
72	0.1007	0.1167	0.0789	0.0988	0.0189

Table D9 Cumulative amount permeation from microemulsion formula 9

Time (hr)	Cumulative amount permeated (mg/ cm^2)			Mean	SD
	n$_1$	n$_2$	n$_3$		
asiaticoside					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0286	0.0000	0.0000	0.0095	0.0165
6	0.0574	0.0481	0.0334	0.0463	0.0121
12	0.1261	0.0907	0.1129	0.1099	0.0179
24	0.2108	0.1547	0.1925	0.1860	0.0286
36	0.2509	0.1908	0.2525	0.2314	0.0352
48	0.3199	0.2494	0.3379	0.3024	0.0468
60	0.3828	0.2851	0.4077	0.3585	0.0648
72	0.4281	0.3353	0.4549	0.4061	0.0628
Madecassic acid					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0051	0.0150	0.0080	0.0094	0.0051
12	0.0211	0.0286	0.0215	0.0237	0.0042
24	0.0473	0.0530	0.0368	0.0457	0.0083
36	0.0513	0.0573	0.0476	0.0521	0.0049
48	0.0649	0.0748	0.0631	0.0676	0.0063
60	0.0912	0.0914	0.0840	0.0889	0.0042
72	0.1069	0.1156	0.0988	0.1071	0.0084
Asiatic acid					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0183	0.0321	0.0085	0.0196	0.0119
12	0.0310	0.0443	0.0201	0.0318	0.0122
24	0.0430	0.0627	0.0337	0.0465	0.0148
36	0.0533	0.0699	0.0378	0.0536	0.0161
48	0.0671	0.0850	0.0501	0.0674	0.0174
60	0.0831	0.0987	0.0630	0.0816	0.0179
72	0.0992	0.1150	0.0749	0.0964	0.0202

Table D10   Cumulative amount permeation from microemulsion formula 10

Time (hr)	Cumulative amount permeated (mg/ cm^2)			Mean	SD
	n_1	n_2	n_3		
asiaticoside					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0401	0.0317	0.0239	0.0211
24	0.0708	0.0819	0.0870	0.0799	0.0083
36	0.1221	0.1163	0.1266	0.1217	0.0052
48	0.1407	0.1560	0.1675	0.1547	0.0135
60	0.1652	0.1914	0.2106	0.1891	0.0228
72	0.1985	0.2184	0.3006	0.2391	0.0541
Madecassic acid					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0194	0.0164	0.0055	0.0138	0.0073
24	0.0350	0.0323	0.0193	0.0289	0.0084
36	0.0535	0.0459	0.0287	0.0427	0.0127
48	0.0602	0.0598	0.0420	0.0540	0.0104
60	0.0702	0.0766	0.0548	0.0672	0.0112
72	0.0860	0.0892	0.0870	0.0874	0.0016
Asiatic acid					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000	0.0000	0.0000
24	0.0395	0.0351	0.0055	0.0267	0.0185
36	0.0489	0.0450	0.0090	0.0343	0.0220
48	0.0585	0.0577	0.0135	0.0432	0.0258
60	0.0703	0.0705	0.0306	0.0571	0.0230
72	0.0840	0.0834	0.0653	0.0776	0.0107

Table D12 Cumulative amount permeation from microemulsion formula 12

Time (hr)	Cumulative amount permeated (mg/ cm^2)			Mean	SD
	n_1	n_2	n_3		
asiaticoside					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000	0.0000	0.0000
24	0.0162	0.0252	0.0385	0.0266	0.0112
36	0.0213	0.0372	0.0509	0.0365	0.0149
48	0.0431	0.0607	0.0785	0.0608	0.0177
60	0.0743	0.0968	0.1139	0.0950	0.0199
72	0.0966	0.1187	0.1348	0.1167	0.0192
Madecassic acid					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0108	0.0230	0.0212	0.0183	0.0066
12	0.0282	0.0381	0.0335	0.0333	0.0050
24	0.0522	0.0678	0.0623	0.0608	0.0079
36	0.0692	0.0904	0.0862	0.0819	0.0112
48	0.0947	0.1209	0.1209	0.1122	0.0152
60	0.1263	0.1517	0.1434	0.1404	0.0130
72	0.1439	0.1679	0.1610	0.1576	0.0123
Asiatic acid					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0054	0.0208	0.0194	0.0152	0.0085
12	0.0279	0.0506	0.0444	0.0410	0.0118
24	0.0457	0.0649	0.0589	0.0565	0.0098
36	0.0641	0.0887	0.0841	0.0790	0.0130
48	0.0888	0.1182	0.1130	0.1067	0.0157
60	0.1309	0.1598	0.1630	0.1512	0.0177
72	0.1566	0.1832	0.1798	0.1732	0.0145

Table D13 Cumulative amount permeation from microemulsion formula 13

Time (hr)	Cumulative amount permeated (mg/ cm^2)			Mean	SD
	n_1	n_2	n_3		
asiaticoside					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000	0.0000	0.0000
24	0.0000	0.0000	0.0000	0.0000	0.0000
36	0.0000	0.0000	0.0000	0.0000	0.0000
48	0.0000	0.0000	0.0000	0.0000	0.0000
60	0.0000	0.0000	0.0000	0.0000	0.0000
72	0.0000	0.0000	0.0000	0.0000	0.0000
Madecassic acid					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0121	0.0079	0.0067	0.0062
12	0.0205	0.0349	0.0285	0.0280	0.0072
24	0.0410	0.0604	0.0493	0.0502	0.0097
36	0.0833	0.1019	0.0859	0.0904	0.0101
48	0.1029	0.1215	0.1054	0.1099	0.0101
60	0.1250	0.1550	0.1255	0.1352	0.0172
72	0.1498	0.1644	0.1472	0.1538	0.0092
Asiatic acid					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0193	0.0312	0.0248	0.0251	0.0060
24	0.0389	0.0506	0.0432	0.0442	0.0059
36	0.0639	0.0888	0.0683	0.0737	0.0133
48	0.0792	0.1077	0.0901	0.0924	0.0144
60	0.1052	0.1333	0.1103	0.1163	0.0150
72	0.1298	0.1431	0.1331	0.1353	0.0069

Table D14 Cumulative amount permeation from microemulsion formula 14

Time (hr)	Cumulative amount permeated (mg/ cm^2)			Mean	SD
	n_1	n_2	n_3		
asiaticoside					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000	0.0000	0.0000
24	0.0019	0.0009	0.0178	0.0069	0.0095
36	0.0022	0.0010	0.0214	0.0082	0.0114
48	0.0022	0.0012	0.0250	0.0095	0.0134
60	0.0128	0.0150	0.0349	0.0209	0.0122
72	0.0149	0.0228	0.0500	0.0292	0.0184
Madecassic acid					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0162	0.0000	0.0054	0.0093
12	0.0047	0.0431	0.0269	0.0249	0.0193
24	0.0279	0.0797	0.0477	0.0518	0.0262
36	0.0739	0.1048	0.0844	0.0877	0.0157
48	0.0927	0.1290	0.1039	0.1085	0.0186
60	0.1417	0.1757	0.1239	0.1471	0.0263
72	0.1618	0.1948	0.1457	0.1674	0.0250
Asiatic acid					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0156	0.0146	0.0100	0.0087
12	0.0058	0.0367	0.0277	0.0234	0.0159
24	0.0238	0.0570	0.0461	0.0423	0.0169
36	0.0652	0.0899	0.0712	0.0754	0.0129
48	0.0805	0.1098	0.0930	0.0945	0.0147
60	0.1038	0.1327	0.1132	0.1166	0.0148
72	0.1167	0.1449	0.1360	0.1326	0.0144

Table D15 Cumulative amount permeation from microemulsion formula 15

Time (hr)	Cumulative amount permeated (mg/ cm^2)			Mean	SD
	n_1	n_2	n_3		
asiaticoside					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0285	0.0195	0.0091	0.0191	0.0097
12	0.0433	0.0334	0.0250	0.0339	0.0091
24	0.0877	0.1008	0.0787	0.0890	0.0111
36	0.1146	0.1369	0.1129	0.1215	0.0134
48	0.1727	0.2054	0.1787	0.1856	0.0174
60	0.2009	0.2454	0.2129	0.2197	0.0230
72	0.3993	0.5422	0.4828	0.4748	0.0718
Madecassic acid					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0298	0.0000	0.0099	0.0172
6	0.0335	0.0444	0.0280	0.0353	0.0084
12	0.0928	0.1146	0.1084	0.1053	0.0112
24	0.1947	0.2212	0.2019	0.2059	0.0137
36	0.2459	0.2978	0.2701	0.2713	0.0260
48	0.3462	0.3944	0.3592	0.3666	0.0249
60	0.4169	0.4598	0.4314	0.4360	0.0218
72	0.5291	0.6125	0.5815	0.5744	0.0422
Asiatic acid					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0345	0.0372	0.0245	0.0321	0.0067
12	0.1043	0.0990	0.0945	0.0992	0.0049
24	0.2197	0.1973	0.1797	0.1989	0.0201
36	0.2994	0.2693	0.2441	0.2709	0.0277
48	0.4172	0.3631	0.3360	0.3721	0.0414
60	0.5192	0.4258	0.3958	0.4470	0.0644
72	0.6317	0.5562	0.5303	0.5728	0.0527

Table D16 Cumulative amount permeation from microemulsion formula 16

Time (hr)	Cumulative amount permeated (mg/ cm^2)			Mean	SD
	n_1	n_2	n_3		
asiaticoside					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0184	0.0061	0.0106
24	0.0000	0.0261	0.0264	0.0175	0.0152
36	0.0000	0.0359	0.0316	0.0225	0.0196
48	0.0264	0.0472	0.0372	0.0369	0.0104
60	0.0397	0.0549	0.0414	0.0453	0.0083
72	0.0522	0.0686	0.0545	0.0584	0.0089
Madecassic acid					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000	0.0000	0.0000
24	0.0000	0.0000	0.0000	0.0000	0.0000
36	0.0060	0.0099	0.0000	0.0053	0.0050
48	0.0084	0.0139	0.0000	0.0074	0.0070
60	0.0118	0.0182	0.0000	0.0100	0.0092
72	0.0156	0.0228	0.0031	0.0138	0.0100
Asiatic acid					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000	0.0000	0.0000
24	0.0000	0.0000	0.0000	0.0000	0.0000
36	0.0000	0.0000	0.0000	0.0000	0.0000
48	0.0000	0.0000	0.0000	0.0000	0.0000
60	0.0000	0.0000	0.0000	0.0000	0.0000
72	0.0073	0.0147	0.0045	0.0089	0.0053

Table D17 Cumulative amount permeation from microemulsion formula 17

Time (hr)	Cumulative amount permeated (mg/ cm^2)			Mean	SD
	n_1	n_2	n_3		
asiaticoside					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0635	0.0000	0.0598	0.0411	0.0356
12	0.1618	0.0000	0.1660	0.1093	0.0947
24	0.2137	0.2179	0.2484	0.2267	0.0189
36	0.2804	0.3068	0.3388	0.3086	0.0292
48	0.3420	0.4056	0.4119	0.3865	0.0387
60	0.3962	0.4691	0.4713	0.4455	0.0427
72	0.4545	0.5425	0.5319	0.5097	0.0480
Madecassic acid					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000	0.0000	0.0000
24	0.0000	0.0000	0.0000	0.0000	0.0000
36	0.0000	0.0000	0.0000	0.0000	0.0000
48	0.0000	0.0000	0.0000	0.0000	0.0000
60	0.0000	0.0000	0.0000	0.0000	0.0000
72	0.0000	0.0000	0.0000	0.0000	0.0000
Asiatic acid					
0	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000	0.0000	0.0000
24	0.0000	0.0000	0.0000	0.0000	0.0000
36	0.0000	0.0000	0.0000	0.0000	0.0000
48	0.0000	0.0000	0.0000	0.0000	0.0000
60	0.0000	0.0000	0.0000	0.0000	0.0000
72	0.0000	0.0000	0.0000	0.0000	0.0000

Table D18   The flux of asiaticoside from microemulsions.

Formula	Flux (μg/hr.cm^2)			Mean	SD
	n1	n2	n3		
1	2.1582	2.1949	2.0864	2.1465	0.0552
2	1.9524	2.9812	1.8963	2.2766	0.6108
3	2.7237	2.6196	2.2610	2.5348	0.2427
4	0.0000	0.0000	0.0000	0.0000	0.0000
5	2.6012	2.7119	2.5452	2.6194	0.0848
6	1.9200	1.5979	2.3490	1.9556	0.3768
7	1.2335	1.0983	1.1819	1.1712	0.0682
8	0.0000	0.0000	0.0000	0.0000	0.0000
9	5.8357	4.4865	6.4536	5.5919	1.0060
10	3.0819	3.2209	4.2108	3.5045	0.6156
11	1.3134	1.7518	2.0747	1.7133	0.3821
12	1.6163	1.9810	2.2100	1.9358	0.2994
13	0.0000	0.0000	0.0000	0.0000	0.0000
14	0.5280	0.8991	0.7256	0.7175	0.1857
15	4.6505	6.2933	5.6356	5.5265	0.8268
16	1.4160	1.0490	0.6779	1.0476	0.3691
17	6.0037	8.4883	7.3003	7.2641	1.2427

Table D19   The flux of madecassic acid from microemulsions.

Formula	Flux (μg/hr.cm^2)			Mean	SD
	n1	n2	n3		
1	2.5092	2.7970	2.8477	2.7180	0.1826
2	1.6401	2.1646	1.9583	1.9210	0.2642
3	3.6821	3.6517	4.0790	3.8042	0.2384
4	1.4190	0.9932	1.3071	1.2398	0.2208
5	2.8786	2.9924	3.2225	3.0312	0.1752
6	4.0125	4.2180	3.9928	4.0744	0.1247
7	3.9757	2.5141	2.4212	2.9703	0.8719
8	1.7409	1.9501	1.5322	1.7411	0.2090
9	1.4710	1.4839	1.3532	1.4360	0.0720
10	1.1955	1.2970	1.2069	1.2331	0.0556
11	4.1114	4.2855	4.1222	4.1730	0.0976
12	2.0241	2.3359	2.2660	2.2086	0.1636
13	2.2158	2.4237	2.1151	2.2515	0.1574
14	2.6049	2.7324	2.1452	2.4942	0.3089
15	7.2283	7.9734	7.7614	7.6544	0.3839
16	0.3085	0.4498	0.2549	0.3377	0.1007
17	0.0000	0.0000	0.0000	0.0000	0.0000

Table D20   The flux of asiatic acid from microemulsions.

Formula	Flux (µg/hr.cm^2)			Mean	SD
	n1	n2	n3		
1	2.0340	2.4249	2.3800	2.2796	0.2139
2	1.8688	1.7855	1.7516	1.8020	0.0603
3	2.9567	3.0093	3.3510	3.1057	0.2141
4	1.6368	0.9525	1.9554	1.5149	0.5125
5	2.0212	2.6251	1.9063	2.1842	0.3861
6	2.7002	2.9801	2.8192	2.8331	0.1405
7	2.6118	1.9162	1.7612	2.0964	0.4530
8	1.7030	1.8768	1.3070	1.6290	0.2920
9	1.2604	1.3859	0.9908	1.2123	0.2018
10	1.2437	1.2755	0.9673	1.1622	0.1695
11	3.2122	3.5097	0.5094	2.4104	1.6531
12	2.1759	2.4640	0.4214	1.6871	1.1055
13	1.8845	2.1515	1.9296	1.9885	0.1430
14	1.8989	2.0636	1.8706	1.9443	0.1042
15	8.8531	7.5283	7.1508	7.8441	0.8940
16	0.6081	1.2292	0.3792	0.7388	0.4398
17	0.0000	0.0000	0.0000	0.0000	0.0000

Table D21   The permeability of asiaticoside from microemulsions.

Formula	Permibility x 10^{-3} (cm^2/hr)			Mean	SD
	n1	n2	n3		
1	0.2735	0.2782	0.2644	0.2720	0.0070
2	0.2523	0.3852	0.2450	0.2942	0.0789
3	0.3515	0.3381	0.2918	0.3271	0.0313
4	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.3492	0.3640	0.3416	0.3516	0.0114
6	0.2578	0.2146	0.3154	0.2626	0.0506
7	0.2085	0.1857	0.1998	0.1980	0.0115
8	0.0000	0.0000	0.0000	0.0000	0.0000
9	0.8287	0.6371	0.9165	0.7941	0.1429
10	0.4436	0.4636	0.6061	0.5044	0.0886
11	0.2059	0.2747	0.3253	0.2686	0.0599
12	0.2466	0.3023	0.3372	0.2954	0.0457
13	0.0521	0.2880	0.3213	0.2205	0.1468
14	0.0759	0.1292	0.1043	0.1031	0.0267
15	0.7439	1.0067	0.9015	0.8840	0.1323
16	0.3822	0.2831	0.1829	0.2827	0.0996
17	0.9132	1.2911	1.1104	1.1049	0.1890

Table D22   The permeability of madecassic acid from microemulsions.

Formula	Permibility x 10^{-3} (cm^2/hr)			Mean	SD
	n1	n2	n3		
1	0.3763	0.4195	0.4271	0.4076	0.0274
2	0.2747	0.3748	0.3280	0.3258	0.0501
3	0.5692	0.5645	0.6305	0.5881	0.0369
4	0.3357	0.2350	0.3093	0.2933	0.0522
5	0.4705	0.4891	0.5267	0.4955	0.0286
6	0.6571	0.6908	0.6539	0.6673	0.0204
7	0.8200	0.5185	0.4994	0.6126	0.1798
8	0.3168	0.3549	0.2788	0.3169	0.0380
9	0.2576	0.2598	0.2369	0.2514	0.0126
10	0.2144	0.2326	0.2165	0.2212	0.0100
11	0.8249	0.8598	0.8271	0.8373	0.0196
12	0.3784	0.4367	0.4237	0.4129	0.0306
13	0.4048	0.4428	0.3864	0.4113	0.0288
14	0.4811	0.5046	0.3962	0.4606	0.0570
15	1.2343	1.3615	1.3253	1.3071	0.0656
16	0.2258	0.3292	0.1865	0.2472	0.0737
17	0.0000	0.0000	0.0000	0.0000	0.0000

Table D23 The permeability of asiatic acid from microemulsions.

Formula	Permibility x 10^{-3} (cm^2/hr)			Mean	SD
	n1	n2	n3		
1	0.3998	0.4766	0.4678	0.4481	0.0420
2	0.3971	0.3794	0.3722	0.3829	0.0128
3	0.6552	0.6668	0.7425	0.6882	0.0474
4	0.4714	0.2743	0.5631	0.4363	0.1476
5	0.4360	0.5663	0.4113	0.4712	0.0833
6	0.6349	0.7007	0.6628	0.6661	0.0330
7	0.6936	0.5089	0.4677	0.5567	0.1203
8	0.4191	0.4619	0.3216	0.4009	0.0719
9	0.2948	0.3242	0.2318	0.2836	0.0472
10	0.3009	0.3086	0.2340	0.2812	0.0410
11	0.8257	0.9021	0.1309	0.6196	0.4249
12	0.5262	0.5959	0.1019	0.4080	0.2674
13	0.4840	0.5526	0.4956	0.5107	0.0367
14	0.4926	0.5353	0.4852	0.5043	0.0270
15	1.6555	1.4077	1.3372	1.4668	0.1672
16	0.4773	0.9647	0.2976	0.5799	0.3452
17	0.0000	0.0000	0.0000	0.0000	0.0000

APPENDIX E

Data Statistic Analysis

Table E1   Independent samples test for comparison permeability of asiaticoside

from microemulsion comprising different oils at Tween 80: Span 80 1:1

	Levene's Test for Equality of Variances		t-test for Equality of Means	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
	F	Sig.	t				
Equal variances assumed	12.984	.023	-.484	4	.654	-.000022133	.0000457451
Equal variances not assumed			-.484	2.032	.676	-.000022133	.0000457451

Based on observed means.
* The mean difference is significant at the .05 level

Table E2   Independent samples test for comparison permeability of asiaticoside

from microemulsion comprising different oils at Tween 80: Span 80 2:1

	Levene's Test for Equality of Variances		t-test for Equality of Means	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
	F	Sig.	t				
Equal variances assumed	11.177	.029	18.088	4	.000	.000327133*	.0000180852
Equal variances not assumed			18.088	2.000	.003	.000327133*	.0000180852

Based on observed means.
* The mean difference is significant at the .05 level

Table E3   Independent samples test for comparison permeability of asiaticoside

from microemulsion comprising different oils at Brij 30

	Levene's Test for Equality of Variances		t-test for Equality of Means	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
	F	Sig.	t				
Equal variances assumed	2.997	.158	2.974	4	.041	.000089000*	.0000299288
Equal variances not assumed			2.974	2.202	.086	.000089000	.0000299288

Based on observed means.
* The mean difference is significant at the .05 level

Table E4   Independent samples test for comparison permeability of asiaticoside

from microemulsion comprising different oils at Brij 97

	Levene's Test for Equality of Variances		t-test for Equality of Means	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
	F	Sig.	t				
Equal variances assumed	6.398	.065	29.806	4	.000	.000198000*	.0000066430
Equal variances not assumed			29.806	2.000	.001	.000198000*	.0000066430

Based on observed means.
* The mean difference is significant at the .05 level

Table E5   Independent samples test for comparison permeability of asiaticoside

from microemulsion comprising different oils at Arlatone T

	Levene's Test for Equality of Variances		t-test for Equality of Means	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
	F	Sig.	t				
Equal variances assumed	.826	.415	2.984	4	.041	.000289667*	.0000970671
Equal variances not assumed			2.984	3.340	.051	.000289667	.0000970671

Based on observed means.
* The mean difference is significant at the .05 level

Table E6   Independent samples test for comparison permeability of madecassic acid

from microemulsion comprising different oils at Tween 80: Span 80 1:1

	Levene's Test for Equality of Variances		t-test for Equality of Means	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
	F	Sig.	t				
Equal variances assumed	.607	.480	2.482	4	.068	.000081800	.0000329611
Equal variances not assumed			2.482	3.099	.086	.000081800	.0000329611

Based on observed means.
* The mean difference is significant at the .05 level

Table E7   Independent samples test for comparison permeability of madecassic acid

from microemulsion comprising different oils at Tween 80: Span 80 2:1

	Levene's Test for Equality of Variances		t-test for Equality of Means	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
	F	Sig.	t				
Equal variances assumed	.550	.500	7.990	4	.001	.000294733*	.0000368885
Equal variances not assumed			7.990	3.595	.002	.000294733*	.0000368885

Based on observed means.
* The mean difference is significant at the .05 level

Table E8   Independent samples test for comparison permeability of madecassic acid

from microemulsion comprising different oils at Brij 30

	Levene's Test for Equality of Variances		t-test for Equality of Means	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
	F	Sig.	t				
Equal variances assumed	.368	.577	-8.460	4	.001	-.000171833*	.0000203111
Equal variances not assumed			-8.460	3.619	.002	-.000171833*	.0000203111

Based on observed means.
* The mean difference is significant at the .05 level

Table E9   Independent samples test for comparison permeability of madecassic acid

from microemulsion comprising different oils at Brij 97

	Levene's Test for Equality of Variances		t-test for Equality of Means	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
	F	Sig.	t				
Equal variances assumed	9.195	.039	2.787	4	.049	.000295800*	.0001061284
Equal variances not assumed			2.787	2.179	.098	.000295800	.0001061284

Based on observed means.
* The mean difference is significant at the .05 level

Table E10   Independent samples test for comparison permeability of madecassic

acid from microemulsion comprising different oils at Arlatone T

	Levene's Test for Equality of Variances		t-test for Equality of Means	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
	F	Sig.	t				
Equal variances assumed	.416	.554	3.259	4	.031	.000030267*	.0000092874
Equal variances not assumed			3.259	3.793	.034	.000030267*	.0000092874

Based on observed means.
* The mean difference is significant at the .05 level

Table E11   Independent samples test for comparison permeability of asiatic acid

from microemulsion comprising different oils at Tween 80: Span 80 1:1

	Levene's Test for Equality of Variances		t-test for Equality of Means	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
	F	Sig.	t				
Equal variances assumed	6.361	.065	2.569	4	.062	.000065167	.0000253693
Equal variances not assumed			2.569	2.369	.105	.000065167	.0000253693

Based on observed means.
* The mean difference is significant at the .05 level

Table E12   Independent samples test for comparison permeability of asiatic acid

from microemulsion comprising different oils at Tween 80: Span 80 2:1

	Levene's Test for Equality of Variances		t-test for Equality of Means	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
	F	Sig.	t				
Equal variances assumed	3.381	.140	2.815	4	.048	.000251900*	.0000894890
Equal variances not assumed			2.815	2.409	.086	.000251900	.0000894890

Based on observed means.
* The mean difference is significant at the .05 level

Table E13   Independent samples test for comparison permeability of asiatic acid

from microemulsion comprising different oils at Brij 30

	Levene's Test for Equality of Variances		t-test for Equality of Means	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
	F	Sig.	t				
Equal variances assumed	4.070	.114	-3.769	4	.020	-.000194933*	.0000517245
Equal variances not assumed			-3.769	2.614	.041	-.000194933*	.0000517245

Based on observed means.
* The mean difference is significant at the .05 level

Table E14   Independent samples test for comparison permeability of asiatic acid

from microemulsion comprising different oils at Brij 97

	Levene's Test for Equality of Variances		t-test for Equality of Means	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
	F	Sig.	t				
Equal variances assumed	1.491	.289	1.926	4	.126	.000155867	.0000809199
Equal variances not assumed			1.926	3.267	.142	.000155867	.0000809199

Based on observed means.
* The mean difference is significant at the .05 level

Table E15   Independent samples test for comparison permeability of asiatic acid from

microemulsion comprising different oils at Arlatone T

	Levene's Test for Equality of Variances		t-test for Equality of Means	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
	F	Sig.	t				
Equal variances assumed	.045	.843	.067	4	.950	.000002433	.0000361103
Equal variances not assumed			.067	3.924	.950	.000002433	.0000361103

Based on observed means.
* The mean difference is significant at the .05 level

Table E16 One-way analysis of variance for permeability of asiaticoside from

microemulsion comprising IPM as oils at different surfactant

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.000	4	.000	37.932	.000
Within Groups	.000	10	.000		
Total	.000	14			

Multiple Comparisons
Dependent Variable: permeability
Scheffe

(I) Surfactant	(J) surfactant	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
T/S 1:1	T/S 2:1	-.000055100	.0000537901	.896	-.000255732	.000145532
	B 30	-.000079567	.0000537901	.706	-.000280199	.000121065
	B 97	.000074033	.0000537901	.755	-.000126599	.000274665
	A T	-.000522080	.0000537901	.000	-.000722712	-.000321448
T/S 2:1	T/S 1:1	.000055100	.0000537901	.896	-.000145532	.000255732
	B 30	-.000024467	.0000537901	.994	-.000225099	.000176165
	B 97	.000129133	.0000537901	.291	-.000071499	.000329765
	A T	-.000466980	.0000537901	.000	-.000667612	-.000266348
B 30	T/S 1:1	.000079567	.0000537901	.706	-.000121065	.000280199
	T/S 2:1	.000024467	.0000537901	.994	-.000176165	.000225099
	B 97	.000153600	.0000537901	.165	-.000047032	.000354232
	A T	-.000442513	.0000537901	.000	-.000643145	-.000241881
B 97	T/S 1:1	-.000074033	.0000537901	.755	-.000274665	.000126599
	T/S 2:1	-.000129133	.0000537901	.291	-.000329765	.000071499
	B 30	-.000153600	.0000537901	.165	-.000354232	.000047032
	A T	-.000596113	.0000537901	.000	-.000796745	-.000395481
A T	T/S 1:1	.000522080	.0000537901	.000	.000321448	.000722712
	T/S 2:1	.000466980	.0000537901	.000	.000266348	.000667612
	B 30	.000442513	.0000537901	.000	.000241881	.000643145
	B 97	.000596113	.0000537901	.000	.000395481	.000796745

* The mean difference is significant at the .05 level.

Table E17   One-way analysis of variance for permeability of madecassic acid from

microemulsion comprising IPM as oils at different surfactant

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.000	4	.000	9.165	.002
Within Groups	.000	10	.000		
Total	.000	14			

Multiple Comparisons
Dependent Variable: permeability
Scheffe

(I) Surfactant	(J) surfactant	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
T/S 1:1	T/S 2:1	-.000180420	.0000687312	.221	-.000436781	.000075941
	B 30	-.000087837	.0000687312	.799	-.000344198	.000168524
	B 97	-.000205000	.0000687312	.139	-.000461361	.000051361
	A T	.000156203	.0000687312	.337	-.000100158	.000412564
T/S 2:1	T/S 1:1	.000180420	.0000687312	.221	-.000075941	.000436781
	B 30	.000092583	.0000687312	.768	-.000163778	.000348944
	B 97	-.000024580	.0000687312	.998	-.000280941	.000231781
	A T	.000336623	.0000687312	.010	.000080262	.000592984
B 30	T/S 1:1	.000087837	.0000687312	.799	-.000168524	.000344198
	T/S 2:1	-.000092583	.0000687312	.768	-.000348944	.000163778
	B 97	-.000117163	.0000687312	.594	-.000373524	.000139198
	A T	.000244040	.0000687312	.064	-.000012321	.000500401
B 97	T/S 1:1	.000205000	.0000687312	.139	-.000051361	.000461361
	T/S 2:1	.000024580	.0000687312	.998	-.000231781	.000280941
	B 30	.000117163	.0000687312	.594	-.000139198	.000373524
	A T	.000361203	.0000687312	.006	.000104842	.000617564
A T	T/S 1:1	-.000156203	.0000687312	.337	-.000412564	.000100158
	T/S 2:1	-.000336623	.0000687312	.010	-.000592984	-.000080262
	B 30	-.000244040	.0000687312	.064	-.000500401	.000012321
	B 97	-.000361203	.0000687312	.006	-.000617564	-.000104842

* The mean difference is significant at the .05 level.

Table E18   One-way analysis of variance for permeability of asiatic acid from

microemulsion comprising IPM as oils at different surfactant

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.000	4	.000	11.988	.001
Within Groups	.000	10	.000		
Total	.000	14			

Multiple Comparisons
Dependent Variable: permeability
Scheffe

(I) Surfactant	(J) surfactant	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
T/S 1:1	T/S 2:1	-.000240098	.0000607294	.037	-.000466613	-.000013583
	B 30	-.000023139	.0000607294	.997	-.000249654	.000203376
	B 97	-.000108640	.0000607294	.552	-.000335155	.000117875
	A T	.000164460	.0000607294	.199	-.000062055	.000390975
T/S 2:1	T/S 1:1	.000240098	.0000607294	.037	.000013583	.000466613
	B 30	.000216959	.0000607294	.062	-.000009556	.000443474
	B 97	.000131458	.0000607294	.380	-.000095057	.000357973
	A T	.000404557	.0000607294	.001	.000178042	.000631072
B 30	T/S 1:1	.000023139	.0000607294	.997	-.000203376	.000249654
	T/S 2:1	-.000216959	.0000607294	.062	-.000443474	.000009556
	B 97	-.000085501	.0000607294	.740	-.000312016	.000141014
	A T	.000187599	.0000607294	.121	-.000038916	.000414114
B 97	T/S 1:1	.000108640	.0000607294	.552	-.000117875	.000335155
	T/S 2:1	-.000131458	.0000607294	.380	-.000357973	.000095057
	B 30	.000085501	.0000607294	.740	-.000141014	.000312016
	A T	.000273100	.0000607294	.017	.000046585	.000499615
A T	T/S 1:1	-.000164460	.0000607294	.199	-.000390975	.000062055
	T/S 2:1	-.000404557	.0000607294	.001	-.000631072	-.000178042
	B 30	-.000187599	.0000607294	.121	-.000414114	.000038916
	B 97	-.000273100	.0000607294	.017	-.000499615	-.000046585

* The mean difference is significant at the .05 level.

293

Table E19 Independent samples test for comparison permeability of asiaticoside

from microemulsion with different cosurfactant

	Levene's Test for Equality of Variances		t-test for Equality of Means	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
	F	Sig.	t				
Equal variances assumed	.176	.696	-.615	4	.572	-.0000268	.00004350
Equal variances not assumed			-.615	3.738	.574	-.0000268	.00004350

Based on observed means.
* The mean difference is significant at the .05 level

Table E20 Independent samples test for comparison permeability of madecassic acid

from microemulsion with different cosurfactant

	Levene's Test for Equality of Variances		t-test for Equality of Means	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
	F	Sig.	t				
Equal variances assumed	1.025	.369	20.238	4	.000	.0004243	.00002097
Equal variances not assumed			20.238	3.403	.000	.0004243	.00002097

Based on observed means.
* The mean difference is significant at the .05 level

Table E21 Independent samples test for comparison permeability of asiatic acid

from microemulsion with different cosurfactant

	Levene's Test for Equality of Variances		t-test for Equality of Means	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
	F	Sig.	t				
Equal variances assumed	.110	.757	8.484	4	.001	.0003055	.00003601
Equal variances not assumed			8.484	3.941	.001	.0003055	.00003601

Based on observed means.
* The mean difference is significant at the .05 level

294

Table E22 One-way analysis of variance for permeability of asiaticoside from

microemulsion comprising propan-2-ol as cosurfactant at different ratios

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.000	2	.000	38.418	.000
Within Groups	.000	6	.000		
Total	.000	8			

Multiple Comparisons
Dependent Variable: permeability
Scheffe

(I) ratio	(J) ratio	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
1:1	2:1	.000268609	.0000309171	.000	.000169450	.000367768
	4:1	.000165471	.0000309171	.005	.000066312	.000264630
2:1	1:1	-.000268609	.0000309171	.000	-.000367768	-.000169450
	4:1	-.000103138	.0000309171	.043	-.000202297	-.000003979
4:1	1:1	-.000165471	.0000309171	.005	-.000264630	-.000066312
	2:1	.000103138	.0000309171	.043	.000003979	.000202297

* The mean difference is significant at the .05 level.

Table E23 One-way analysis of variance for permeability of madecassic acid from

microemulsion comprising propan-2-ol as cosurfactant at different ratios

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.000	2	.000	109.462	.000
Within Groups	.000	6	.000		
Total	.000	8			

Multiple Comparisons
Dependent Variable: permeability
Scheffe

(I) ratio	(J) ratio	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1:1	2:1	.000425923	.0000314933	.000	.000324916	.000526930
	4:1	.000376647	.0000314933	.000	.000275640	.000477655
2:1	1:1	-.000425923	.0000314933	.000	-.000526930	-.000324916
	4:1	-.000049276	.0000314933	.358	-.000150283	.000051732
4:1	1:1	-.000376647	.0000314933	.000	-.000477655	-.000275640
	2:1	.000049276	.0000314933	.358	-.000051732	.000150283

* The mean difference is significant at the .05 level.

Table E24   One-way analysis of variance for permeability of asiatic acid acid from

microemulsion comprising propan-2-ol as cosurfactant at different ratios

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.000	2	.000	97.326	.000
Within Groups	.000	6	.000		
Total	.000	8			

Multiple Comparisons
Dependent Variable: permeability
Scheffe

(I) ratio	(J) ratio	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1:1	2:1	.000368670	.0000307812	.000	.000269947	.000467394
	4:1	.000375080	.0000307812	.000	.000276357	.000473803
2:1	1:1	-.000368670	.0000307812	.000	-.000467394	-.000269947
	4:1	.000006410	.0000307812	.979	-.000092314	.000105133
4:1	1:1	-.000375080	.0000307812	.000	-.000473803	-.000276357
	2:1	-.000006410	.0000307812	.979	-.000105133	.000092314

*The mean difference is significant at the .05 level.

APPENDIX F

Ingredient properties

Arlatone T

1. Chemical Name

The chemical name of Arlatone T is PEG-40 Sorbitan peroleate. It is a mixture of oleic acid esters of sorbitol condensed with an average of 40 moles of ethylene oxide (Wenninger,1995)

2. General Characteristics

Arlatone T is a nonionic surfactant. The appearance at 25 °C is yellow liquid. The specific gravity at 20 °C approximately is 1.0 and viscosity at 25 °C is 175 mPas. It has HLB number 9.0 (Wade and Weller, 1994).

3. Solubility

Arlatone T is soluble in vegetable oil, mineral oil, isopropyl myristate and isopropyl palmitate but dispersible in water (Wade and Weller, 1994).

4. Specification

The Acid number is 8.0 – 12.0 mgKOH/g and sponification number is 100-110 mgKOH/g (Wade and Weller, 1994).

Brij 30

1. Chemical Name

The chemical name of Brij 30 is Polyoxyethylene (4) lauryl ether (Laureth-4). It is produced by the polyethoxylation of linear fatty alcohols (Wade and Weller, 1994).

2. General Characteristics

The appearance is colorless to light yellow liquid. The specific gravity and viscosity at 25 °C are 0.95 and 30 cp, respectively. The HLB number is 9.7 (Wade and Weller, 1994).

3.Solubility

Brij 30 is soluble in ethanol and propylene glycol and dispersible in water, cottonseed oil and mineral oil (Wade and Weller, 1994).

Brij 97

1. Chemical Name

The chemical name of Brij 97 is Polyoxyethylene (10) oleyl ether (Oleth-10). It is the polyethylene glycol ether of oleyl alcohol. It has Emperical formula $C_{38}H_{76}O_{11}$ (Wenninger, 1995).

2. Chemical Structure

Brij 97 conforms generally to the formula:

$$CH_3(CH_2)_7CH=CH(CH_2)_7CH_2(OCH_2CH_2)_nOH$$
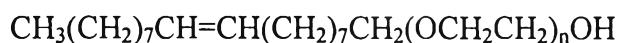
Figure A1 Chemical structure of Brij 97 (Wenninger, 1995).

Where n is the number of ethylene oxide groups in the hydrophillic chain.

3. General Characteristics

Brij 97 is used as nonionic surfactant with pale yellow liquid with some solid appearance. The viscosity of 100 cps at 25 °C. The HLB number is 12.4 (Wade and Weller, 1994).

4. Solubility

Brij 97 is generally soluble in ethanol and water but insoluble in cottonseed oil, mineral oil and propylene glycol (Wade and Weller, 1994).

Caprylic/capric triglyceride

1. Chemical name

Caprylic/capric triglyceride is the mixed triester of glycerin and coconut oil fatty acids mainly caprylic and capric acids.

2. Chemical Structure

$$H_2C - O-\overset{\overset{O}{\|}}{C}\text{-}[CH_2]_n\ CH_3$$
$$|\quad \overset{\overset{O}{\|}}{}$$
$$HC\text{-}O\text{-}\overset{\overset{O}{\|}}{C}\text{-}[CH2]_n\text{-}CH_3$$
$$|$$
$$H_2C\text{-}O\text{-}C\text{-}[CH2]_n\text{-}CH_3$$
$$\underset{O}{\|}$$
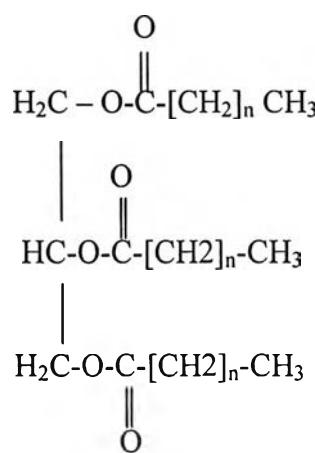
Figure A2 Chemical structure of caprylic/capric triglyceride (Wenninger, 1995).

Where n as 6 or 8

3. General Characteristic

The appearance of caprylic/capric triglyceride is clear liquid and odorless. The specific gravity and viscosity at 25°C are 1.447 and 25 cPs, respectively. The required HLB of capric/caprylic triglyceride is 11 (Merck, 2001).

4. Solubility

Caprylic/capric triglyceride is miscible with most organic solvents including 95% ethanol (Merck, 2001).

5. Application

Caprylic/capric triglyceride is a luxurious emollient with special appeal to

cosmetic formulator. It finds a wide use in creams and lotions where it dose not only functions as an emollient but also enhances emulsion stability. It is also recommened for use in skin care products, lipsticks and foundations.

Isopropyl alcohol

1. Chemical Name

The chemical name is 2-propanol and synonyms are isopropanol, secondary propyl alcohol. The empirical formula is C_2H_8O (Merck, 2001).

2. Chemical Structure

Isopropyl alcohol is aliphatic alcohol that conforms to the formula:

$$CH_3\text{-}\underset{\underset{OH}{|}}{C}H\text{-}CH_3$$
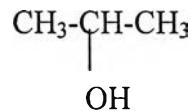
Figure A3 Chemical structure of isopropyl alcohol.

3. General Characteristics

Isopropanol is flammable liquid, slightly odor resembling that of a mixture of ethanol and acetone, slightly taste (Merck, 2001).

4. Solubility

Isopropanol is miscible with water, alcohol, ether and chloroform but insoluble in salt solutions (Merck, 2001).

Isopropyl myristate

1. Chemical Name

1- methylethyl tetradecanoate is a chemical name of isopropyl myristate. IPM is the ester of isopropyl alcohol and myristic acid. The molecular weight of IPM is 270.51 g/mole (Wade and Weller, 1994).

2. Chemical Structure

$$O$$
$$\|$$
$$CH_3(CH_2)_{12}C\text{-}OCH(CH_3)_2$$
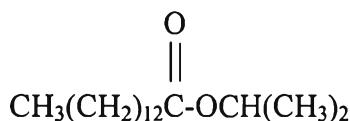
Figure A4 Chemical structure of isopropyl myristate (Wenninger, 1995).

3. General Characteristics

IPM is clear, colorless, practically odorless, mobile liquid with a bland taste. It is resistant to oxidation and hydrolysis and does not become rancid. IPM is widely used in cosmetics and topical pharmeceutical formulations and is generally regarded as a nontoxic and nonirritant material. The viscosity of IPM is 5-7 mPas at 25 ° (Wade and Weller, 1994).

4. Solubility

IPM is miscible with acetone, chloroform, ethanol, ethylacetate, fats, fatty alcohols, fixed oils, liquid hydrocarbons, toluene and waxes. It is practically insoluble in glycerin, propylene glycol and water (Merck, 2001).

Propylene glycol

1. Chemical Name

The chemical name of propylene glycol is 1,2-propanediol and synonyms are 1,2-dihydroxypropane, 2-hydroxypropanol, methyl ethylene glycol, methyl glycol and propane-1,2-diol. The empirical formula is $C_3H_8O_2$. The molecular weight is 76.09 g/mole (Merck, 2001).

2. Chemical Structure

PG is the aliphatic alcohol that conforms generally to the formula:

$$CH_3CHCH_2OH$$
$$|$$
$$OH$$
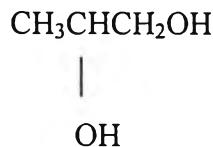
Figure A5 Chemical structure of propylene glycol.

3. General Characteristics

Propylene glycol has become widely used as a solvent, extractant and preservative in a variety of parenteral and nonparenteral pharmaceutical formulations. Propylene glycol is a clear, coloeless, viscous, practically odorless liquid with a aweet, slighty acrid taste resembling glycerin. The viscosity of propylene glycol at 20 °C is 58.1 mPas (0.581 P) (Wade and Weller, 1994).

4. Solubility

Propylene glycol is miscible with acetone, chloroform, 95% ethanol, glycerin and water. It is soluble 1 in 6 parts of ether but not miscible with light mineral oils, but dissolve some essential oils (Wade and Weller, 1994).

Span 80

1. Chemical Name

The chemical name of Span 80 is sorbitan oleate. It is the monoester of oleic acid and hexitol anhydride derived from sorbitol. It has Emperical formula $C_{24}H_{44}O_6$ (Wenninger, 1995).

2. Chemical Structure

Span 80 conforms generally to the formula:
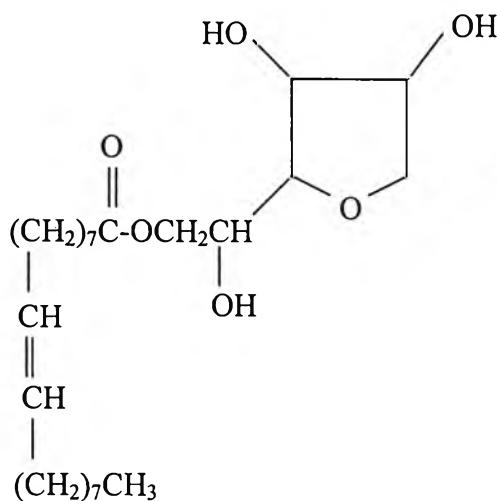
Figure A6 Chemical structure of Span 80 (Wenninger, 1995).

3. General Characteristics

The molecular weight of Span 80 is 429 g/mole. It is a yellow liquid with a more or less distinctive odor and taste. Span 80 has a viscosity of 1000 cP at 25 °C. The HLB number is 4.3 (Wade and Weller, 1994).

4. Solubility

Span 80 is generally soluble or dispersible in oil. It is also soluble in most organic solvents. In water, span 80 is generally insoluble but dispersible (Wade and Weller, 1994).

Tween 80

1. Chemical Name

The chemical name of Tween 80 is Polysorbate 80. It is a mixture of oleate esters of sorbitol and sorbitol anhydrides, consisting predominantly of the monoester, condensed with approximately 20 moles of ethylene oxide (Wenninger, 1995).

2. Chemical Structure

$$CH_3(CH_2)_7CH$$
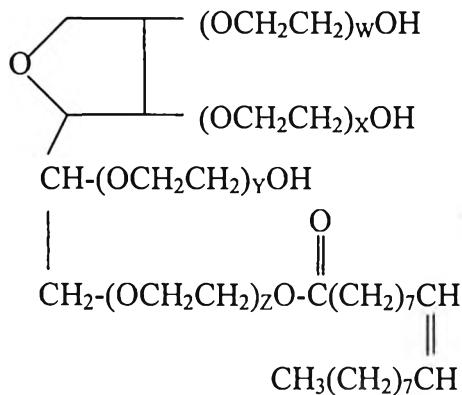
Figure A7 Chemical structure of Tween 80 (Wade and Weller, 1994)

Where w + x + y + z has an average value of 20.

3. General Characteristics

The molecular weight of Tween 80 is 1310 g/mole. It is yellow oily liquid at 25 °C and has a charateristic odor and bitter taste. The specific gravity and viscosity at 25 °C approximate 1.08 and 425 mPas. It has HLB number 15.0 (Wade and Weller, 1994).

4. Solubility

Tween 80 is soluble in ethanol and water, and insoluble in vegetable oil and mineral oil (Wade and Weller, 1994).

5. Application

Tween 80 is hydrophilic nonionic surfactants used widely as emulsifying agents in the preparation of oil-in-water emulsions. It may also be used as solubilizing agents for a variety of substances and as wetting agents in the formulation of oral and parenteral suspentions. Tween 80 is also widely used in cosmetics and food products (Wade and Weller, 1994).

VITA

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